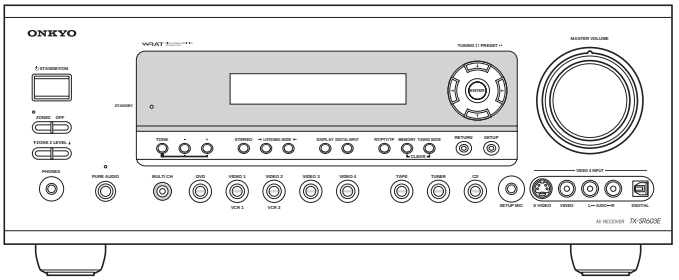
Ref. No. 3864
042005

# ONKYO SERVICE MANUAL

## AV RECEIVER

## MODEL TX-SR603
## MODEL TX-SR603E
## MODEL TX-SR8360



RC-591M

**TX-SR603 Black, Golden and Silver models**

| | |
|---|---|
| B MDD, B MDC, S MDC | 120V AC, 60Hz |
| B MPA, S MPA | 230-240V AC, 50Hz |
| B MWT, G MWT | 120V/220-230V AC, 50/60Hz |
| G MGR, G MGQ, G MGK | 220-230V AC, 50/60Hz |

**TX-SR603E Black and Silver models**

| | |
|---|---|
| B MPP, S MPP | 230-240V AC, 50Hz |

**TX-SR8360 Golden model**

| | |
|---|---|
| G MGR | 220-230V AC, 50/60Hz |

### SAFETY-RELATED COMPONENT WARNING!!

**COMPONENTS IDENTIFIED BY MARK ⚠ ON THE SCHEMATIC DIAGRAM AND IN THE PARTS LIST ARE CRITICAL FOR RISK OF FIRE AND ELECTRIC SHOCK. REPLACE THESE COMPONENTS WITH ONKYO PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL.**

**MAKE LEAKAGE-CURRENT OR RESISTANCE MEASUREMENTS TO DETERMINE THAT EXPOSED PARTS ARE ACCEPTABLY INSULATED FROM THE SUPPLY CIRCUIT BEFORE RETURNING THE APPLIANCE TO THE CUSTOMER.**

ONKYO®
IMAGINATIVE SIGHT & SOUND

# SPECIFICATIONS

## Amplifier Section

**Power Output**

| | |
|---|---|
| 2 channel driven: | North American: **85 W + 85 W (8Ω, 20Hz-20kHz, FTC)**<br>European: 120 W + 120 W (6Ω, 1kHz, DIN)<br>Asian, Australian: 150 W + 150 W (6Ω, 1kHz, JEITA) |
| Dynamic Power | 220 W + 220 W (3Ω, Front)<br>165 W + 165 W (4Ω, Front)<br>100 W + 100 W (8Ω, Front) |
| THD (Total Harmonic Distortion) | 0.08 % (Power Rated) |
| Damping Factor | 60 (Front, 1kHz, 8Ω) |
| Input Sensitivity and Impedance | 200 mV/ 47 kΩ (LINE) |
| Output Level and Impedance | 200 mV/ 470 Ω (REC OUT) |
| Frequency Response | 10 Hz-100 kHz/ +1 dB-3 dB (Direct mode) |
| Tone Control | ±10 dB, 50 Hz (BASS)<br>±10 dB, 10 kHz (TREBLE) |
| SN Ratio | 106 dB (LINE IHF-A) |
| Speaker Impedance | North American: 6Ω-<br>Others: 4Ω- |

## Video Section

| | |
|---|---|
| Input Sensitivity/Output Level and Impedance | 1 Vp-p /75Ω (Component and S-Video Y)<br>0.7 Vp-p /75Ω (Component Pb/Cb,Pr/Cr)<br>0.28 Vp-p /75Ω (S-Video C)<br>1 Vp-p /75Ω (Composite) |
| Component Video Frequency Response | 5 Hz-50 MHz |

## Tuner Section

**■FM**

| | |
|---|---|
| Tuning Frequency Range | North American: 87.5 MHz-107.9 MHz<br>Others: 87.5 MHz- 108.0 MHz |
| Usable Sensitivity | Stereo: 17.2 dBf 2μV(75Ω IHF)<br>Mono: 11.2 dBf 1μV(75Ω IHF) |
| S/N Ratio | Stereo: 70 dB (IHF-A)<br>Mono: 76 dB (IHF-A) |
| THD | Stereo: 0.3 % (1kHz)<br>Mono: 0.2 % (1kHz) |
| Frequency Response | 30 Hz-15 kHz / ± 1 dB |
| Stereo Separation | 45 dB (1kHz) |

**■AM**

| | |
|---|---|
| Tuning Frequency Range | North American: 530 kHz-1700 kHz<br>Others: 522 kHz-1611 kHz |
| Usable Sensitivity | 30μV |
| S/N Ratio | 40 dB |
| THD | 0.70% |

## General

| | |
|---|---|
| Power Supply | North American: AC 120 V, 60 Hz<br>Australian and European: AC 230-240 V, 50 Hz<br>Others: AC 120/220-230 V, 50/60 Hz<br>AC 230-240 V, 50Hz<br>AC 220-230 V, 50/60 Hz |
| Power Consumption | North American: 6.7A<br>Others: 650 W |
| Stand-by Power Consumption | 1.0 W |
| Dimensions (W x H x D) | 435 W x 175 H x 430 D mm<br>17-1/8" W x 6-7/8" H x 16-15/16" D inches |
| Weight | North American, Australian, European, Singapore and East southern asian: 13.6 kg<br>30.0 lbs<br>Others: 14.8 kg<br>32.6 lbs |

**■Video Inputs**

| | |
|---|---|
| Component Video Input | 1, 2, 3 |
| S-Video Compatible Jack Input | DVD, VIDEO1, VIDEO2, VIDEO3, VIDEO4 |
| A/V Input | DVD, VIDEO1, VIDEO2, VIDEO3, VIDEO4 |

**■Video Outputs**

| | |
|---|---|
| Component Video Output | OUT |
| S-Video Compatible Jack Output | MONITOR OUT, VIDEO1, VIDEO2 |
| A/V Output | MONITOR OUT, VIDEO1, VIDEO2 |

**■Audio Inputs**

| | |
|---|---|
| Digital Inputs | Optical: 4(North American)/ 3(other)<br>Coaxial: 2 |
| Analog Inputs | DVD(MULTICHANNEL), VIDEO1, VIDEO2, VIDEO3, VIDEO4, TAPE, CD |
| Multichannel Inputs | 6 |

**■Audio Outputs**

| | |
|---|---|
| Digital Outputs | 1(Optical ) 0(Coaxial ) |
| Analog Outputs | TAPE, VIDEO1, VIDEO2 |
| Subwoofer Pre Outputs | 1 |
| Speaker Outputs | 9 |
| Phones | 1 |

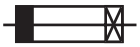
**■Other Jacks**

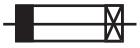
| | |
|---|---|
| IR Input | 1 |
| 12V Trigger Out | 1 |

Specifications and features are subject to change without notice.

# SERVICE PROCEDURE

## 1. Replacing the fuses


This symbol located near the fuse indicates that the fuse used is show operating type, For continued protection against fire hazard, replace with same type fuse, For fuse rating, refer to the marking adjacent to the symbol.


Ce symbole indique que le fusible utilise est e lent. Pour une protection permanente, n'utiliser que des fusibles de meme type. Ce demier est indique la qu le present symbol est apposre.

**<Notes>**

<DC> : TX-SR603 Canadian model
<DD> : TX-SR603 American model
<GK> : TX-SR603 Korean model
<GQ> : TX-SR603 Hong kong model
<GR> : TX-SR603 Chinese model
<PA> : TX-SR603 Australian model
<WT> : TX-SR603 World wide model
<PP> : TX-SR603E European model
<8360> : TX-SR8360 Chinese model

| REF NO. | PART NAME | DESCRIPTION | PART NO. | REMARKS |
|---|---|---|---|---|
| F901 | FUSE | 10A-UL | 252199 | !, <DD, DC> |
| F901 | FUSE | 5A-SE-EAK | 252078 | !, <WT> |
| F901 or | FUSE | 5A-SE-TL250V | 252244 | !, <WT> |
| F901 or | FUSE | 5A-SE-TL250V | 252278 | !, <WT> |
| F902 | FUSE | 5A-SE-EAK | 252078 | !, <PP, PA, WT, GK, GR, GQ>, <8360> |
| F902 or | FUSE | 5A-SE-TL250V | 252244 | !, <PP, PA, WT, GK, GR, GQ>, <8360> |
| F902 or | FUSE | 5A-SE-TL250V | 252278 | !, <PP, PA, WT, GK, GR, GQ> |
| F903 | FUSE | 5A-UL/T-237 | 252164 | !, <DD, DC> |
| F903 or | FUSE | 5A-T/UL-ST2 | 252258 | !, <DD, DC> |
| F903 | FUSE | 2.5A-SE-EAK | 252075 | !, <PP, PA, WT, GK, GR, GQ>, <8360> |
| F903 or | FUSE | 2.5A-SE-TL250V | 252241 | !, <PP, PA, WT, GK, GR, GQ>, <8360> |
| F903 or | FUSE | 2.5A-SE-TL250V | 252275 | !, <PP, PA, WT, GK, GR, GQ>, <8360> |
| F6901 | FUSE | 12A-UL/T-314 | 252196 | ! |
| F6901 or | FUSE | 12A-TUL-250V | 252301 | ! |
| F6902 | FUSE | 12A-UL/T-314 | 252196 | ! |
| F6902 or | FUSE | 12A-TUL-250V | 252301 | ! |
| F9501 | FUSE | 2.5A-SE-EAK | 252075 | ! |
| F9501 or | FUSE | 2.5A-SE-TL250V | 252241 | ! |
| F9501 or | FUSE | 2.5A-T/UL-ST2 | 252254 | ! |

## 2. To initialize the unit

1. Press and the hold down the VIDEO 1/VCR button, then press the STANDBY/ON button when the unit is Power on.
2. After " *Clear* " is displayed, the preset memory and each mode stored in the memory, are initialized and will return to the factory settings.

## 3. To check version of microprocessor

Main microprocessor Q701 only.

1. Press and the hold down the DISPLAY button , then press the STANDBY/ON button when the unit is Power on. Version is displayed on FL display only for 3 seconds.

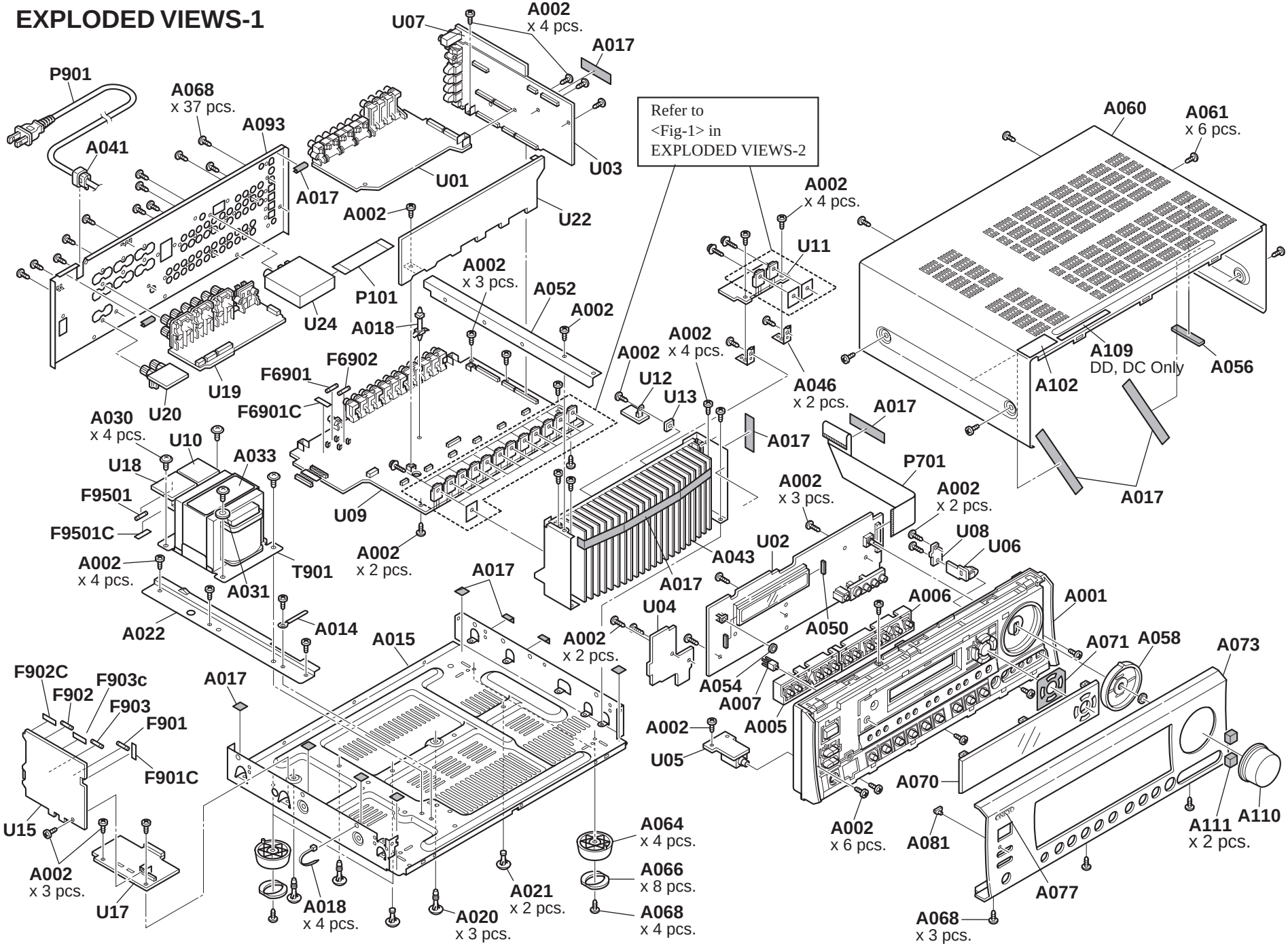
Ex. *Ver.1.01/05305a*

2. Press the STANDBY/ON button to Power off.

## 4. Memory Backup

The AV receiver uses a battery-less memory backup system in order to retain radio presets and other settings when it's unplugged or in the case of a power failure.
Although no batteries are required, the AV receiver must be plugged into an AC outlet in order to charge the backup system. Once it has been charged, the AV receiver will retain the settings for several weeks, although this depends on the environment and will be shorter in humid climates.

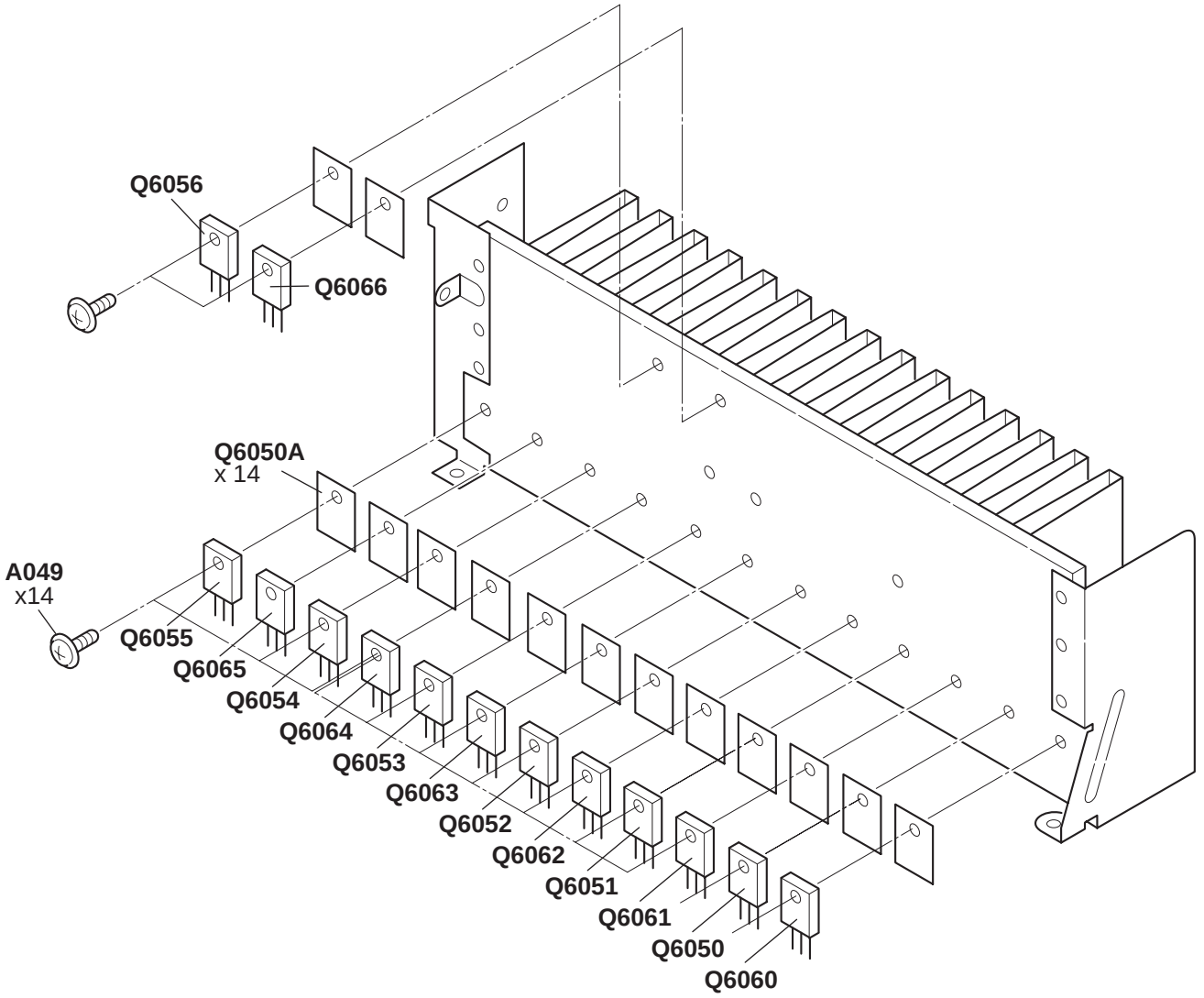
# EXPLODED VIEWS-1




TX-SR603/603E/8360

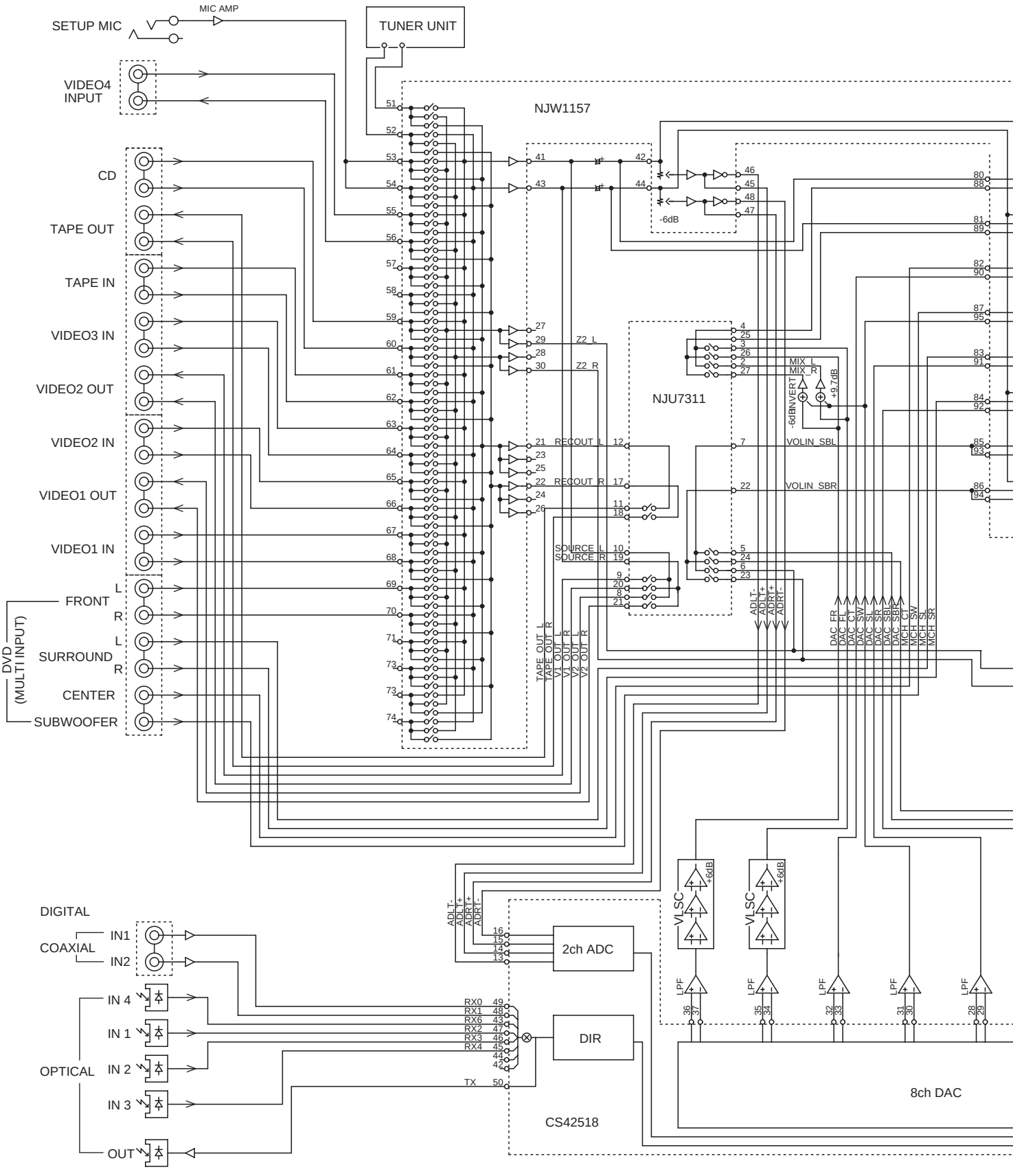
## EXPLODED VIEWS-2

<Fig-1>

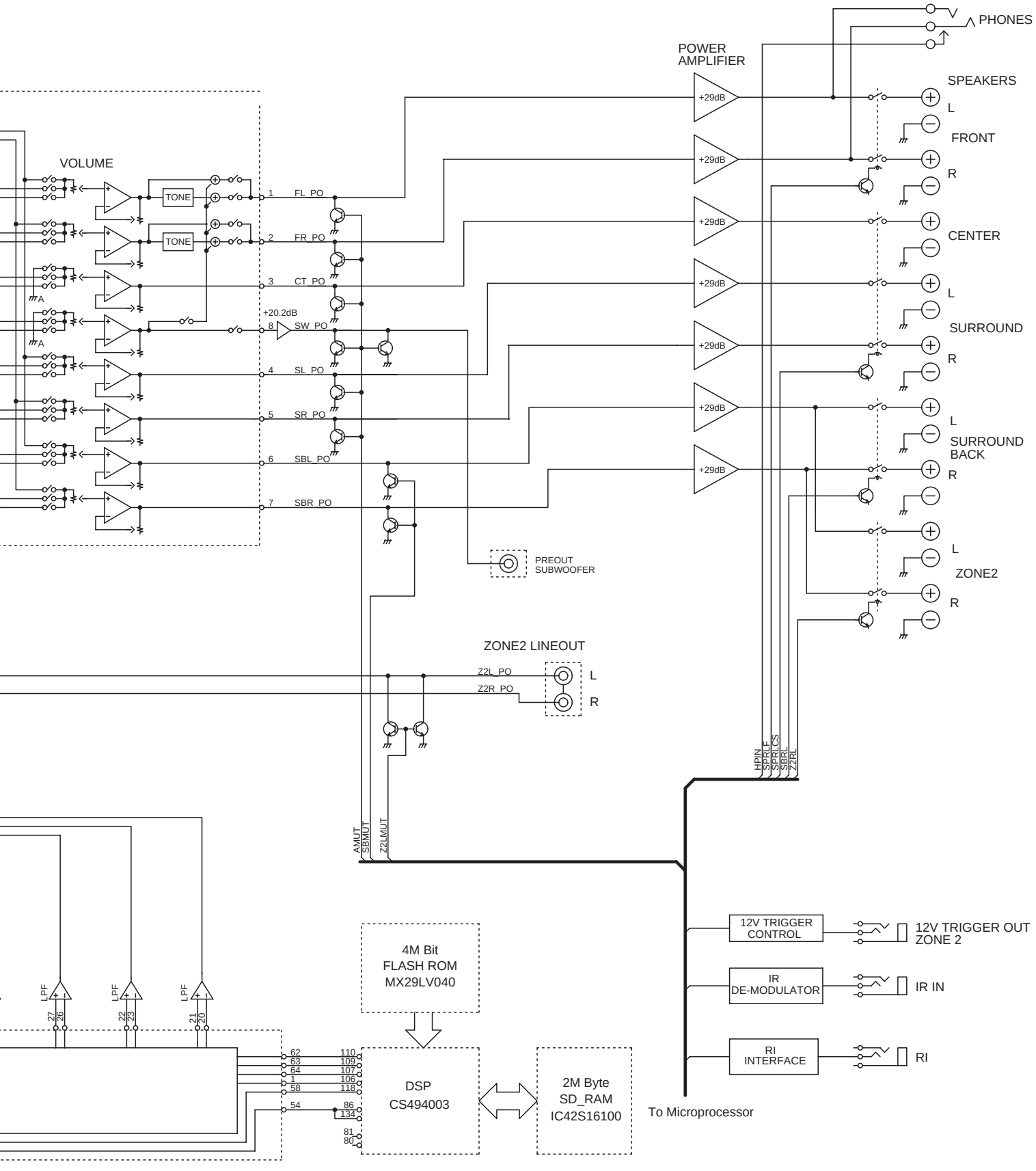



TX-SR603/603E/8360

# BLOCK DIAGRAM



E F G H


PHONES
POWER AMPLIFIER
SPEAKERS
L
FRONT
R
CENTER
L
SURROUND
R
L
SURROUND BACK
R
L
ZONE2
R
+29dB
VOLUME
TONE
1 FL_PO
2 FR_PO
3 CT_PO
+20.2dB
8 SW_PO
4 SL_PO
5 SR_PO
6 SBL_PO
7 SBR_PO
PREOUT SUBWOOFER
ZONE2 LINEOUT
Z2L_PO
Z2R_PO
L
R
HPIN
SPRLF
SPRLCS
SPRLL
Z2RL
AMUT
SBMUT
Z2LMUT
LPF
27
26
22
23
21
20
62
63
64
1
58
54
110
109
107
106
118
86
134
81
80
4M Bit FLASH ROM MX29LV040
DSP CS494003
2M Byte SD_RAM IC42S16100
12V TRIGGER CONTROL
12V TRIGGER OUT ZONE 2
IR DE-MODULATOR
IR IN
RI INTERFACE
RI
To Microprocessor

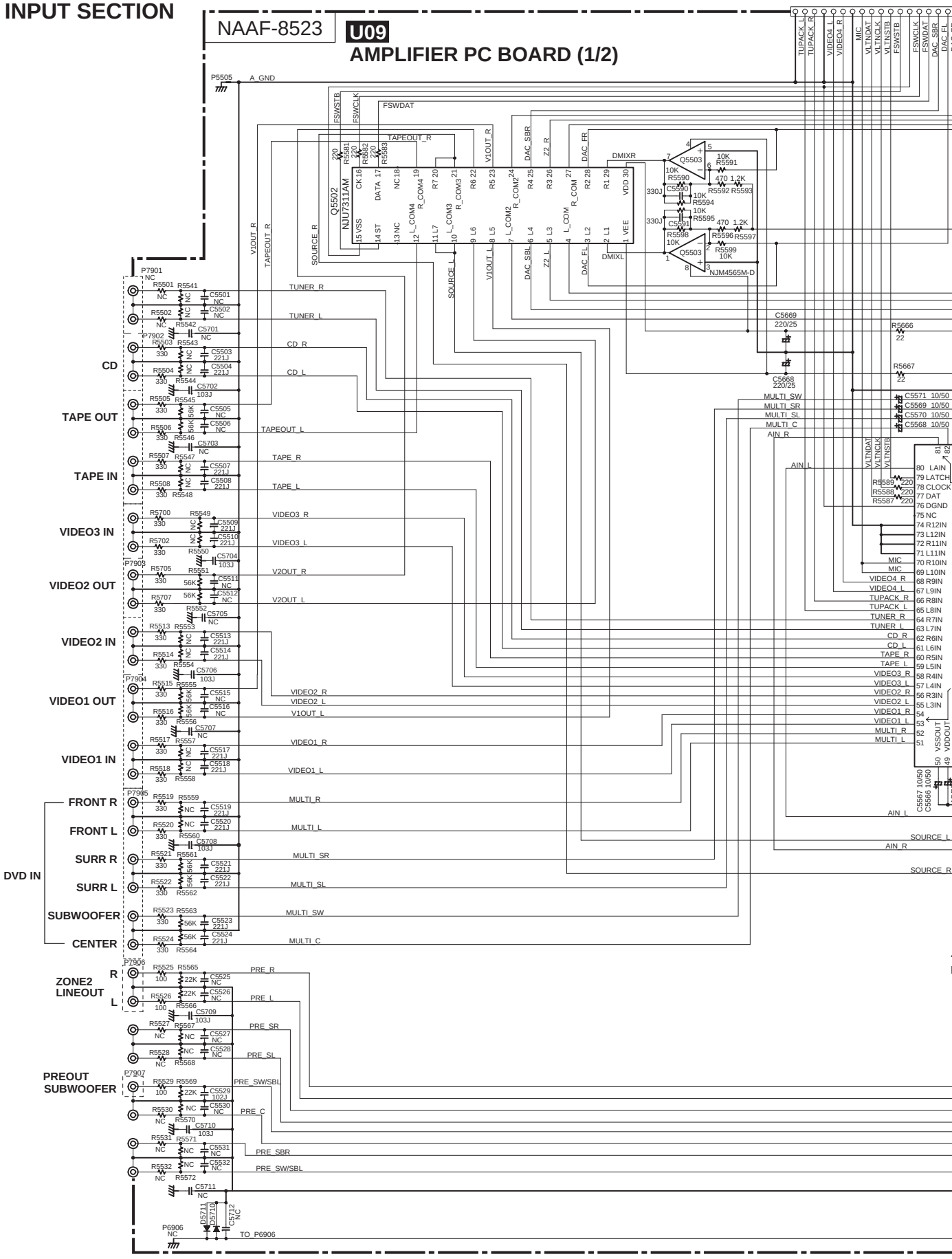
# SCHEMATIC DIAGRAMS-1

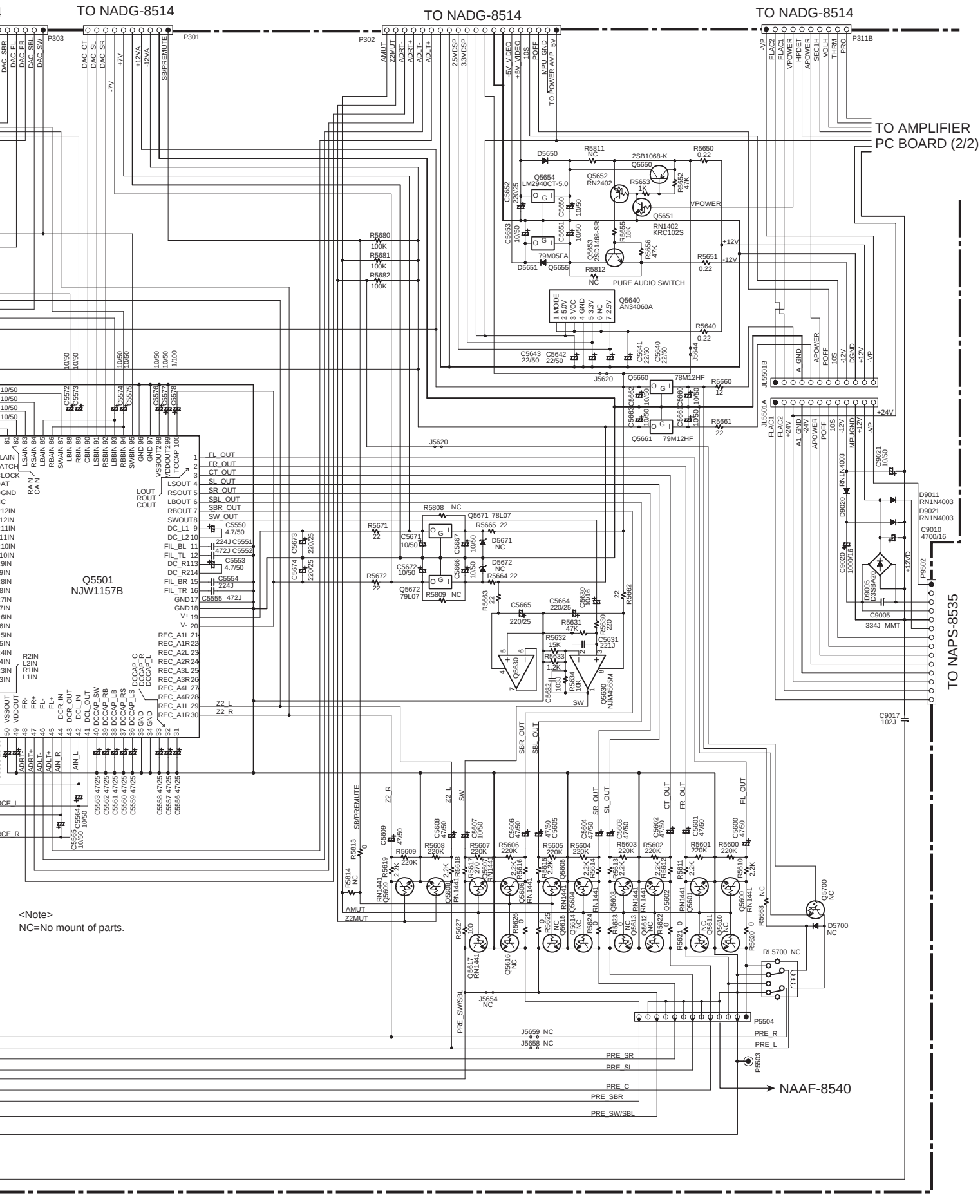
## AUDIO INPUT SECTION

NAAF-8523 **U09**

### AMPLIFIER PC BOARD (1/2)

TO NADG-8514




E
F
G
H
TO NADG-8514
TO NADG-8514
TO NADG-8514
TO AMPLIFIER
PC BOARD (2/2)
TO NAPS-8535
NAAF-8540
P303
P301
P302
P311B
Q5501
NJW1157B
Q5630
NJM4565M
Q5640
AN34060A
PURE AUDIO SWITCH
SW
<Note>
NC=No mount of parts.

# SCHEMATIC DIAGRAMS-1

## AUDIO INPUT SECTION

NAAF-8523 **U09**

### AMPLIFIER PC BOARD (1/2)

TO NADG-8514 (P303)

TO NADG-8514 (P301)

TO NADG-8514 (P302)

TO NADG-8514 (P311B)

TO AMPLIFIER PC BOARD (2/2)

TO NAPS-8535

NAAF-8540

Q5501 NJW1157B

Q5503 NJM4565M-D

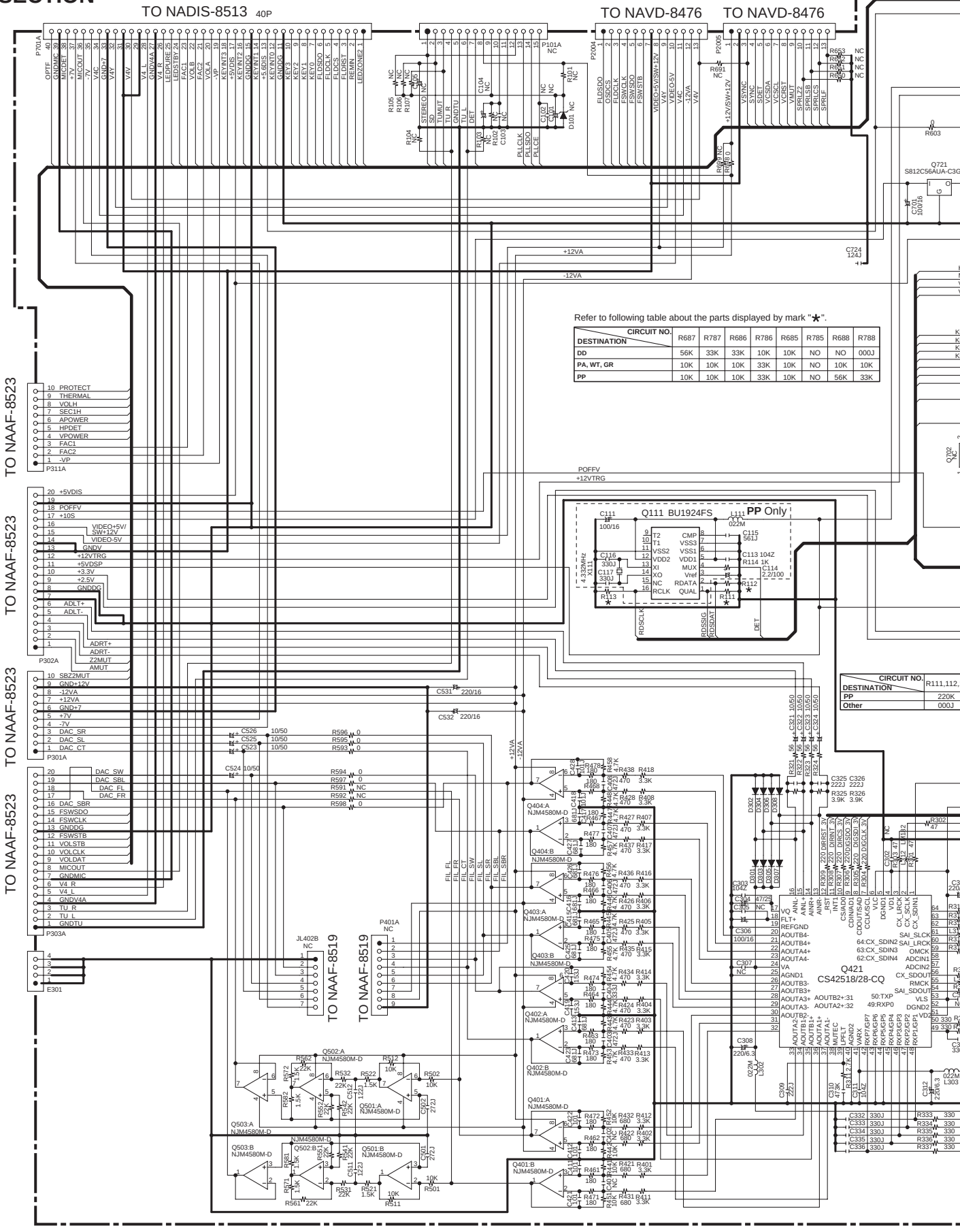
Q5502 NJU7311AM

Q5630 NJM4565M

<Note>
NC=No mount of parts.

# SCHEMATIC DIAGRAMS-2

## DSP SECTION




| CIRCUIT NO. / DESTINATION | R687 | R787 | R686 | R786 | R685 | R785 | R688 | R788 |
|---|---|---|---|---|---|---|---|---|
| DD | 56K | 33K | 33K | 10K | 10K | NO | NO | 000J |
| PA, WT, GR | 10K | 10K | 10K | 33K | 10K | NO | 10K | 10K |
| PP | 10K | 10K | 10K | 33K | 10K | NO | 56K | 33K |

| CIRCUIT NO. / DESTINATION | R111,112, |
|---|---|
| PP | 220K |
| Other | 000J |

E F G H

8514

**U03 DSP PC BOARD**

**U07** NAETC-8518
**IR IN TERMINAL PC BOARD**

RI

12V TRIGGER OUT
ZONE2
IR IN

IN 1
COAXIAL
IN 2

DIGITAL
IN 1
IN 2
OPTICAL
IN 3
OUT

Q701
M30622MGP-236FPU0

TO FLASH WRITER

Q201
CS494003

Q281
MX26LV040-70

Q282
IC42S16100 or IC42S16100

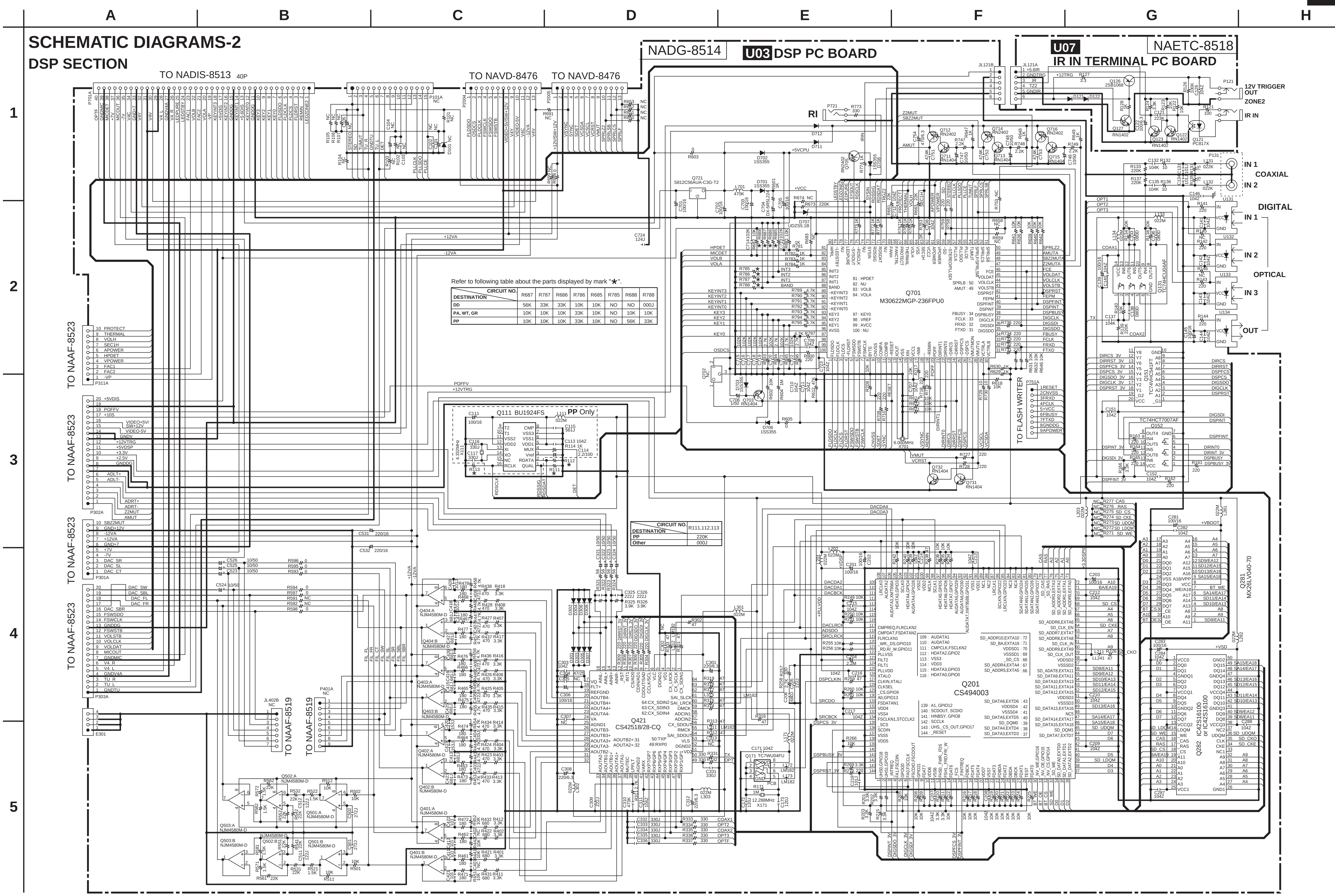
Q171 TC7WU04FU

12.288MHz X171

6.000MHz X701

# SCHEMATIC DIAGRAMS-2

## DSP SECTION



TO NADIS-8513 40P
TO NAVD-8476
TO NAVD-8476
NADG-8514
U03 DSP PC BOARD
U07
NAETC-8518
IR IN TERMINAL PC BOARD
12V TRIGGER OUT
ZONE2
IR IN
IN 1
COAXIAL
IN 2
DIGITAL
IN 1
IN 2
OPTICAL
IN 3
OUT
RI
Q701
M30622MGP-236FPU0
TO FLASH WRITER
Q111 BU1924FS
PP Only
TO NAAF-8523
TO NAAF-8523
TO NAAF-8523
TO NAAF-8523
TO NAAF-8519
TO NAAF-8519
Q421
CS42518/28-CQ
Q201
CS494003
Q281
MX26LV040-70
Q282 IC42S16100
or IC42S16100
Q151
TC74VHC541FT
Q152
TC74HCT7007AF
Q131
TC74HCU04AF
Q171 TC7WU04FU


Refer to following table about the parts displayed by mark "★".

| DESTINATION \ CIRCUIT NO. | R687 | R787 | R686 | R786 | R685 | R785 | R688 | R788 |
|---|---|---|---|---|---|---|---|---|
| DD | 56K | 33K | 33K | 10K | 10K | NO | NO | 000J |
| PA, WT, GR | 10K | 10K | 10K | 33K | 10K | NO | 10K | 10K |
| PP | 10K | 10K | 10K | 33K | 10K | NO | 56K | 33K |

| DESTINATION \ CIRCUIT NO. | R111,112,113 |
|---|---|
| PP | 220K |
| Other | 000J |

# SCHEMATIC DIAGRAMS-3

## POWER AMPLIFIER SECTION-1

Refer to following table about the parts displayed by mark " ✱ ".

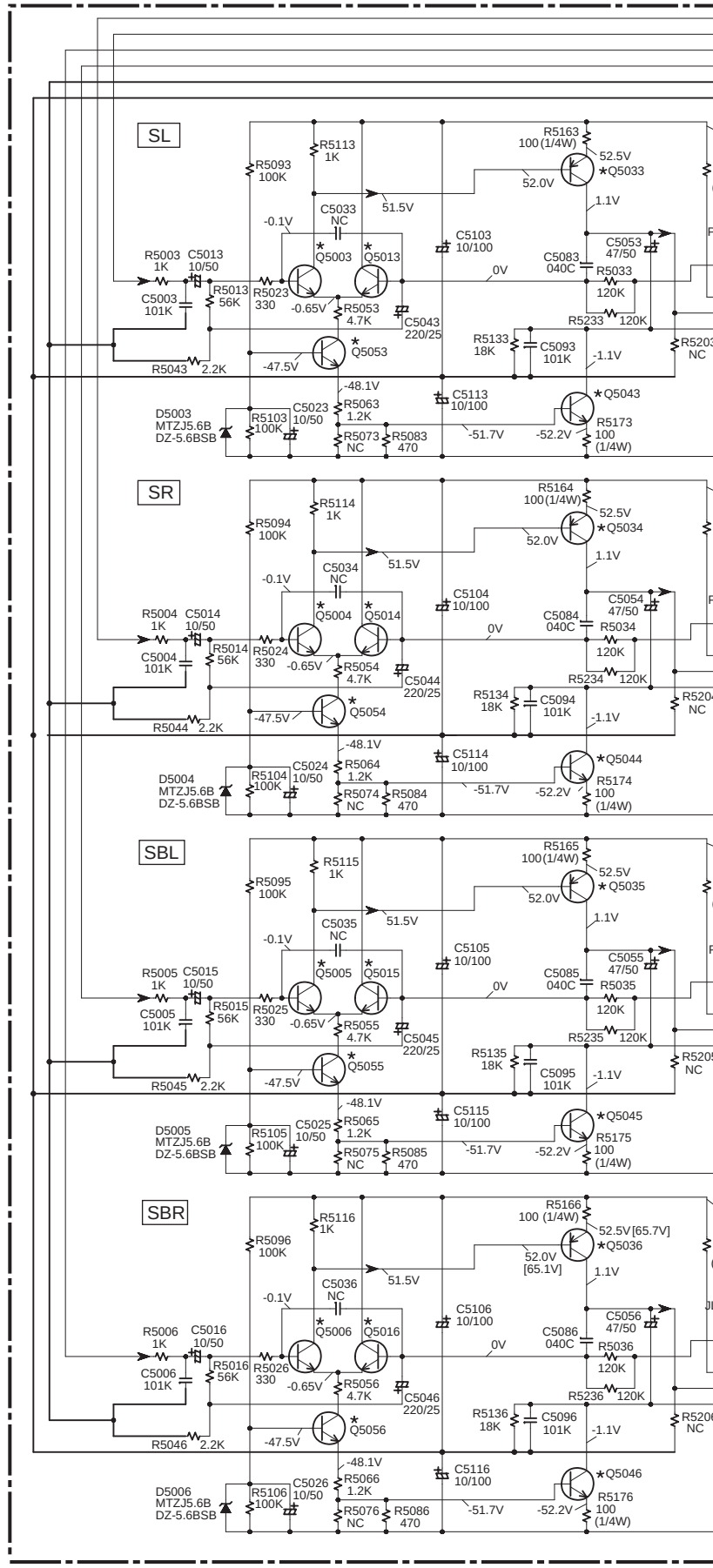
**Transistors**

| CIRCUIT NO. | DESCRIPTION |
|---|---|
| Q5000 - 5002<br>Q5010 - 5012 | 2SC2240-BL |
| Q5003 - 5006<br>Q5013 - 5016 | 2SC2240-BL, KTC3200-BL |
| Q5030 -5036 | 2SA949-Y |
| Q5040 - 5046 | 2SC2229-Y |
| Q5050 - 5056 | 2SC2240-GR, BL |

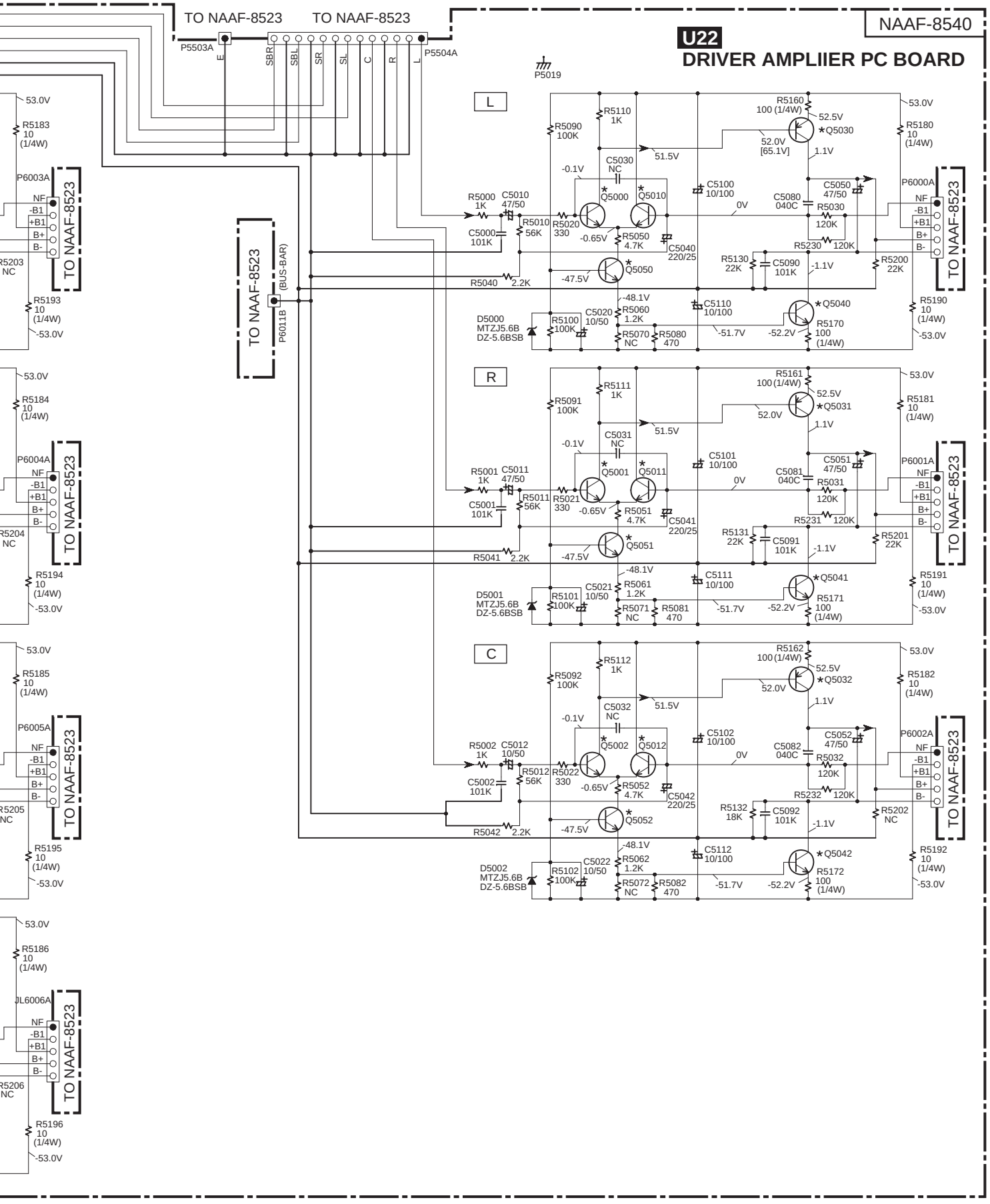
NOTE

- THE COMPONENTS IDENTIFIED BY MARK ⚠ ARE CRITICAL FOR SAFETY REPLACE ONLY WITH PART NUMBER SPECIFIED.
- VOLTAGE (MEASURED WITH VOLTMETER) ⟨ IS DC VOLTAGE.(NO INPUT SIGNAL).
- ALL PNP TRANSISTORS ARE EQUIVALENT TO 2SA1015-GR UNLESS OTHERWISE NOTED.
- ALL NPN TRANSISTORS ARE EQUIVALENT TO 2SC1815-GR UNLESS OTHERWISE NOTED.
- ALL DIODES ARE EQUIVALENT TO 1SS133 UNLESS OTHERWISE NOTED.
- ELECTROLYTIC CAPACITORS ( ⊣⊢ ) ARE IN uF/WV.
- ALL CAPACITORS ARE IN pF/50WV UNLESS OTHERWISE NOTED.
  EX) 030- 3pF 330- 33pF 331- 330pF 333- 0.033uF
- ALL RESISTORS ARE IN OHMS 1/4WATTS UNLESS OTHERWISE NOTED.
- THE THICK LINES ON PC BOARD ARE THE PRINTING SIDE OF THE PARTS.
  EX) ⊙⊙⊙ ← PRINTING SIDE
- CIRCUIT IS SUBJECT TO CHANGE FOR IMPROVEMENT.

<Note>
NC=No mount of parts.



E F G H


NAAF-8540
U22
DRIVER AMPLIIER PC BOARD
TO NAAF-8523
TO NAAF-8523
P5503A
P5504A
E
SBR
SBL
SR
SL
C
R
L
P5019
L
R
C
TO NAAF-8523 (BUS-BAR)
P6011B
P6003A
P6004A
P6005A
P6006A
P6000A
P6001A
P6002A
R5183 10 (1/4W)
R5184 10 (1/4W)
R5185 10 (1/4W)
R5186 10 (1/4W)
R5193 10 (1/4W)
R5194 10 (1/4W)
R5195 10 (1/4W)
R5196 10 (1/4W)
R5180 10 (1/4W)
R5181 10 (1/4W)
R5182 10 (1/4W)
R5190 10 (1/4W)
R5191 10 (1/4W)
R5192 10 (1/4W)
R5203 NC
R5204 NC
R5205 NC
R5206 NC
R5202 NC
53.0V
-53.0V
R5090 100K
R5091 100K
R5092 100K
R5110 1K
R5111 1K
R5112 1K
R5160 100 (1/4W)
R5161 100 (1/4W)
R5162 100 (1/4W)
52.5V
52.0V
[65.1V]
51.5V
1.1V
Q5030
Q5031
Q5032
C5030 NC
C5031 NC
C5032 NC
-0.1V
R5000 1K
C5010 47/50
R5001 1K
C5011 47/50
R5002 1K
C5012 10/50
Q5000
Q5010
Q5001
Q5011
Q5002
Q5012
C5000 101K
C5001 101K
C5002 101K
R5010 56K
R5011 56K
R5012 56K
R5020 330
R5021 330
R5022 330
-0.65V
R5050 4.7K
R5051 4.7K
R5052 4.7K
C5040 220/25
C5041 220/25
C5042 220/25
R5040 2.2K
R5041 2.2K
R5042 2.2K
Q5050
Q5051
Q5052
-47.5V
C5100 10/100
C5101 10/100
C5102 10/100
0V
C5080 040C
C5081 040C
C5082 040C
C5050 47/50
C5051 47/50
C5052 47/50
R5030 120K
R5031 120K
R5032 120K
R5230 120K
R5231 120K
R5232 120K
R5130 22K
R5131 22K
R5132 18K
C5090 101K
C5091 101K
C5092 101K
-1.1V
R5200 22K
R5201 22K
R5202 NC
-48.1V
D5000 MTZJ5.6B DZ-5.6BSB
D5001 MTZJ5.6B DZ-5.6BSB
D5002 MTZJ5.6B DZ-5.6BSB
R5100 100K
R5101 100K
R5102 100K
C5020 10/50
C5021 10/50
C5022 10/50
R5060 1.2K
R5061 1.2K
R5062 1.2K
R5070 NC
R5071 NC
R5072 NC
R5080 470
R5081 470
R5082 470
C5110 10/100
C5111 10/100
C5112 10/100
-51.7V
-52.2V
Q5040
Q5041
Q5042
R5170 100 (1/4W)
R5171 100 (1/4W)
R5172 100 (1/4W)

# SCHEMATIC DIAGRAMS-3

## POWER AMPLIFIER SECTION-1

Refer to following table about the parts displayed by mark " ✱ ".

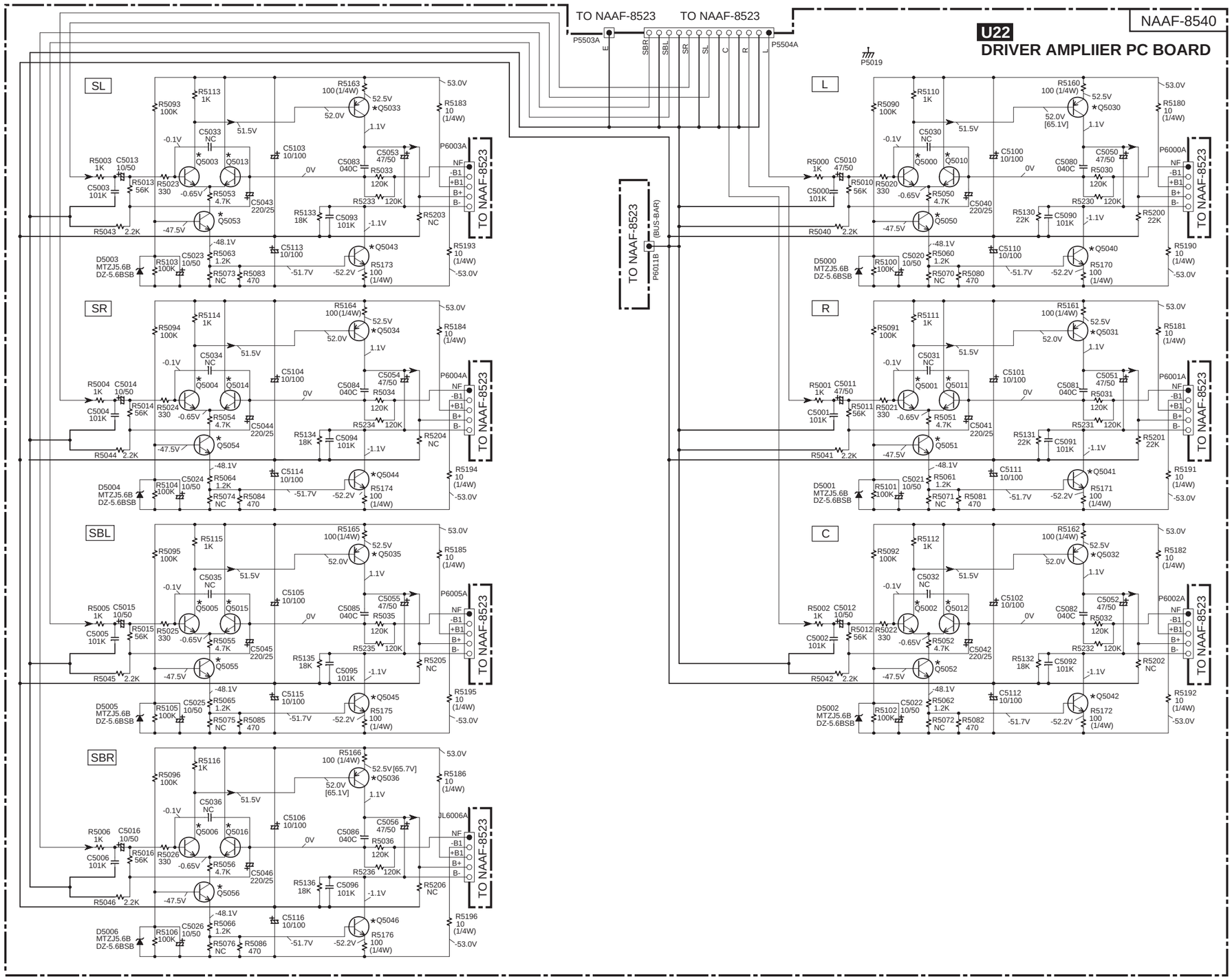
**Transistors**

| CIRCUIT NO. | DESCRIPTION |
|---|---|
| Q5000 - 5002<br>Q5010 - 5012 | 2SC2240-BL |
| Q5003 - 5006<br>Q5013 - 5016 | 2SC2240-BL, KTC3200-BL |
| Q5030 -5036 | 2SA949-Y |
| Q5040 - 5046 | 2SC2229-Y |
| Q5050 - 5056 | 2SC2240-GR, BL |

NOTE

- THE COMPONENTS IDENTIFIED BY MARK ⚠ ARE CRITICAL FOR SAFETY REPLACE ONLY WITH PART NUMBER SPECIFIED.
- VOLTAGE (MEASURED WITH VOLTMETER) ⟨ ⟩ IS DC VOLTAGE.(NO INPUT SIGNAL).
- ALL PNP TRANSISTORS ARE EQUIVALENT TO 2SA1015-GR UNLESS OTHERWISE NOTED.
- ALL NPN TRANSISTORS ARE EQUIVALENT TO 2SC1815-GR UNLESS OTHERWISE NOTED.
- ALL DIODES ARE EQUIVALENT TO 1SS133 UNLESS OTHERWISE NOTED.
- ELECTROLYTIC CAPACITORS ( ⊣⊢ ) ARE IN uF/WV.
- ALL CAPACITORS ARE IN pF/50WV UNLESS OTHERWISE NOTED.
  EX) 030- 3pF 330- 33pF 331- 330pF 333- 0.033uF
- ALL RESISTORS ARE IN OHMS 1/4WATTS UNLESS OTHERWISE NOTED.
- THE THICK LINES ON PC BOARD ARE THE PRINTING SIDE OF THE PARTS.
  EX) ○○○ PRINTING SIDE
- CIRCUIT IS SUBJECT TO CHANGE FOR IMPROVEMENT.

<Note>
NC=No mount of parts.



A B C D

# SCHEMATIC DIAGRAMS-4

## POWER AMPLIFIER SECTION-2

Refer to following table about the parts displayed by mark " ✱ ".

**Transistors**

| CIRCUIT NO. | DESCRIPTION |
|---|---|
| Q6010 - 6016 | 2SC1740S-S |
| Q6020 - 6026 | 2SC1740S-S |
| Q6030 - 6036 | 2SC5171, 2SC5993-Q, P |
| Q6040 - 6046 | 2SA1930, 2SA2140-Q, P |
| Q6070 - 6076 | 2SC2229-Y |
| Q6701, 6702 | 2SC2240-GR, BL, KTC3200-GR, BL |
| Q6703 | KTA1268-BL, GR, 2SA992-E, F<br>2SA1123-R |
| Q6050 - 6052 | 2SC5242-O, R |
| Q6053 - 6055 | 2SC5242-O, R, MN130S-Y, P, O |
| Q6060 - 6062 | 2SA1962-O, R |
| Q6063 - 6060 | 2SA1962-O,R, MP130S-Y, P, O |

NOTE

- THE COMPONENTS IDENTIFIED BY MARK ⚠ ARE CRITICAL FOR SAFETY REPLACE ONLY WITH PART NUMBER SPECIFIED.
- VOLTAGE (MEASURED WITH VOLTMETER) ⟨ ▭ IS DC VOLTAGE.(NO INPUT SIGNAL).
- ALL PNP TRANSISTORS ARE EQUIVALENT TO 2SA1015-GR UNLESS OTHERWISE NOTED.
- ALL NPN TRANSISTORS ARE EQUIVALENT TO 2SC1815-GR UNLESS OTHERWISE NOTED.
- ALL DIODES ARE EQUIVALENT TO 1SS133 UNLESS OTHERWISE NOTED.
- ELECTROLYTIC CAPACITORS ( ⊣‡⁺ ) ARE IN uF/WV.
- ALL CAPACITORS ARE IN pF/50WV UNLESS OTHERWISE NOTED. EX) 030- 3pF 330- 33pF 331- 330pF 333- 0.033uF
- ALL RESISTORS ARE IN OHMS 1/4WATTS UNLESS OTHERWISE NOTED.
- THE THICK LINES ON PC BOARD ARE THE PRINTING SIDE OF THE PARTS. EX) ▭ ← PRINTING SIDE
- CIRCUIT IS SUBJECT TO CHANGE FOR IMPROVEMENT.

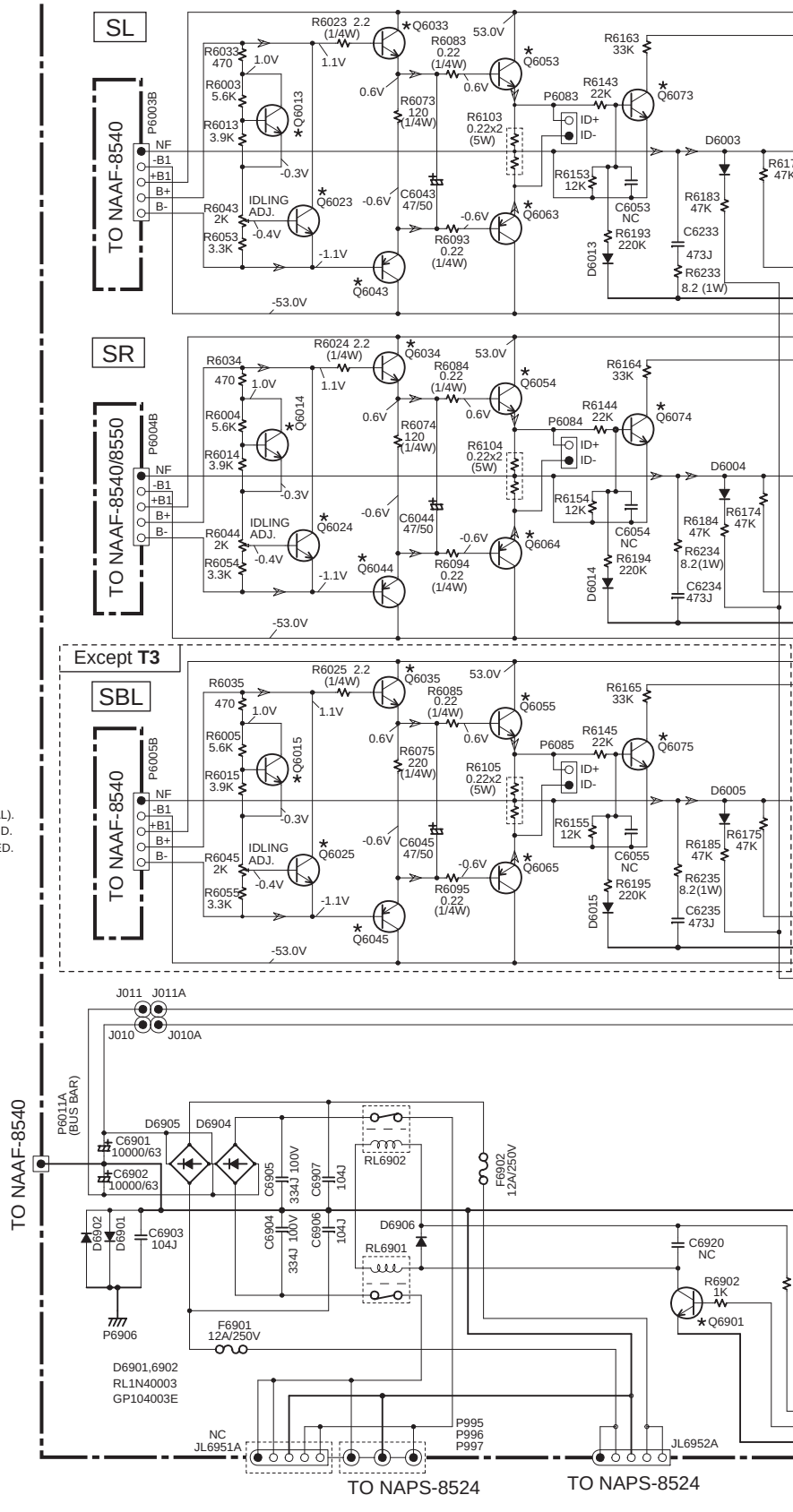
<Note>
NC=No mount of parts.

Refer to following table about the parts displayed by mark "✱".

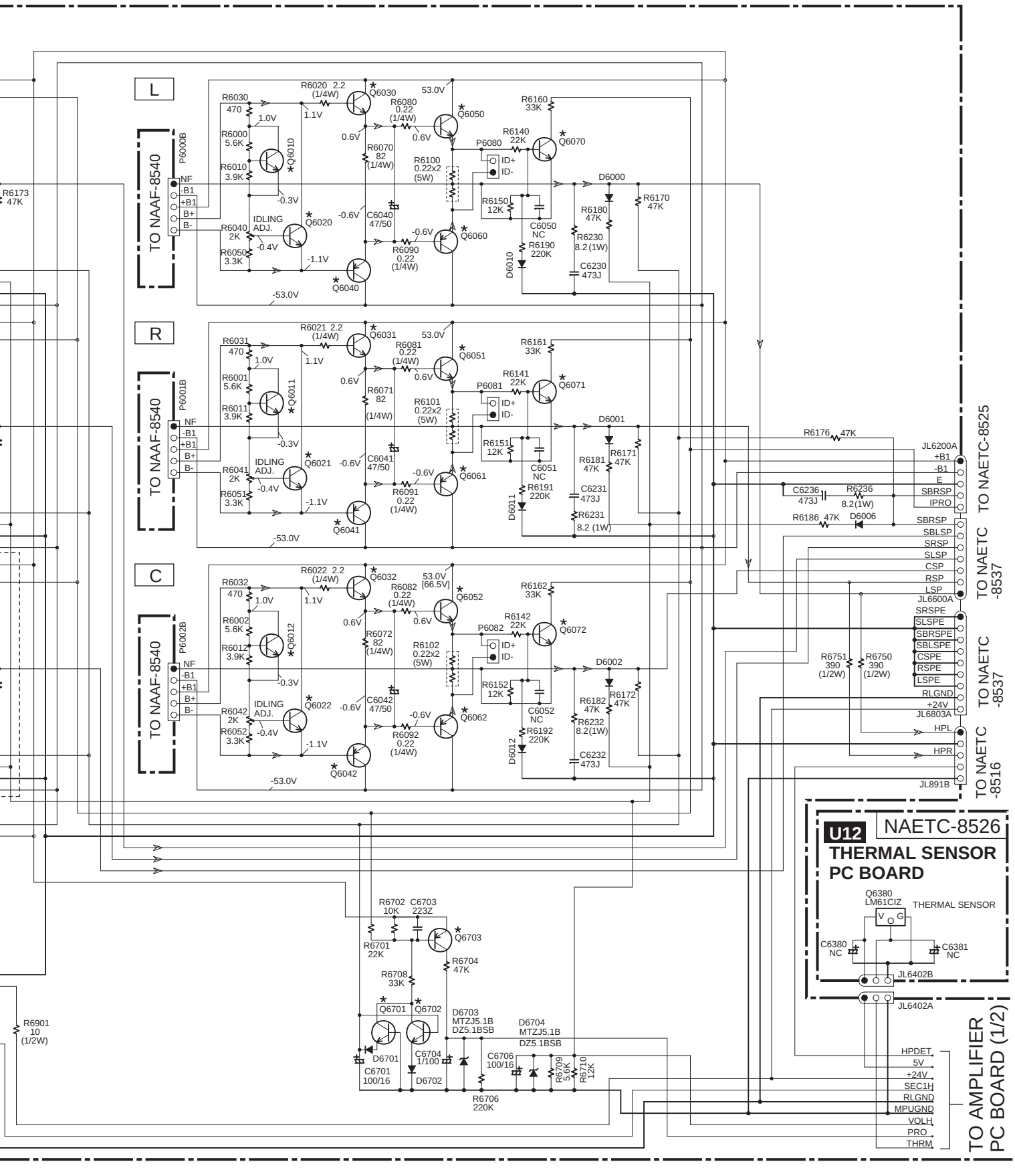
NAAF-8523

**U05**

### AMPLIFIER PC BOARD (2/2)



E F G H


L
R
C
TO NAAF-8540
P6000B
P6001B
P6002B
NF
-B1
+B1
B+
B-
R6030 470
R6020 2.2 (1/4W)
Q6030
53.0V
R6080 0.22 (1/4W)
Q6050
R6160 33K
R6140 22K
Q6070
P6080
ID+
ID-
R6000 5.6K
R6010 3.9K
Q6010
1.0V
1.1V
0.6V
R6070 82 (1/4W)
R6100 0.22x2 (5W)
D6000
R6150 12K
C6050 NC
R6190 220K
D6010
R6180 47K
R6230 8.2 (1W)
C6230 473J
R6170 47K
R6040 2K
R6050 3.3K
IDLING ADJ.
-0.3V
-0.4V
-0.6V
-1.1V
Q6020
Q6040
C6040 47/50
R6090 0.22 (1/4W)
Q6060
-53.0V
R6031 470
R6021 2.2 (1/4W)
Q6031
R6081 0.22 (1/4W)
Q6051
R6161 33K
R6141 22K
Q6071
P6081
R6001 5.6K
R6011 3.9K
Q6011
R6071 82 (1/4W)
R6101 0.22x2 (5W)
D6001
R6151 12K
C6051 NC
R6191 220K
D6011
R6181 47K
R6171 47K
C6231 473J
R6231 8.2 (1W)
R6041 2K
R6051 3.3K
Q6021
Q6041
C6041 47/50
R6091 0.22 (1/4W)
Q6061
R6032 470
R6022 2.2 (1/4W)
Q6032
53.0V [66.5V]
R6082 0.22 (1/4W)
Q6052
R6162 33K
R6142 22K
Q6072
P6082
R6002 5.6K
R6012 3.9K
Q6012
R6072 82 (1/4W)
R6102 0.22x2 (5W)
D6002
R6152 12K
C6052 NC
R6192 220K
D6012
R6182 47K
R6172 47K
R6232 8.2 (1W)
C6232 473J
R6042 2K
R6052 3.3K
Q6022
Q6042
C6042 47/50
R6092 0.22 (1/4W)
Q6062
R6176 47K
JL6200A
+B1
-B1
E
SBRSP
IPRO
C6236 473J
R6236 8.2(1W)
R6186 47K
D6006
TO NAETC-8525
SBRSP
SBLSP
SRSP
SLSP
CSP
RSP
LSP
JL6600A
TO NAETC -8537
SRSPE
SLSPE
SBRSPE
SBLSPE
CSPE
RSPE
LSPE
RLGND
+24V
JL6803A
R6751 390 (1/2W)
R6750 390 (1/2W)
HPL
HPR
JL891B
TO NAETC -8516
R6173 47K
R6901 10 (1/2W)
R6702 10K
C6703 223Z
Q6703
R6701 22K
R6704 47K
R6708 33K
Q6701
Q6702
D6703 MTZJ5.1B DZ5.1BSB
D6704 MTZJ5.1B DZ5.1BSB
D6701
D6702
C6701 100/16
C6704 1/100
C6706 100/16
R6709 5.6K
R6710 12K
R6706 220K
U12 NAETC-8526
THERMAL SENSOR PC BOARD
Q6380 LM61CIZ
THERMAL SENSOR
V O G
C6380 NC
C6381 NC
JL6402B
JL6402A
HPDET
5V
+24V
SEC1H
RLGND
MPUGND
VOLH
PRO
THRM
TO AMPLIFIER PC BOARD (1/2)

# SCHEMATIC DIAGRAMS-4

## POWER AMPLIFIER SECTION-2

Refer to following table about the parts displayed by mark " ★ ".

**Transistors**

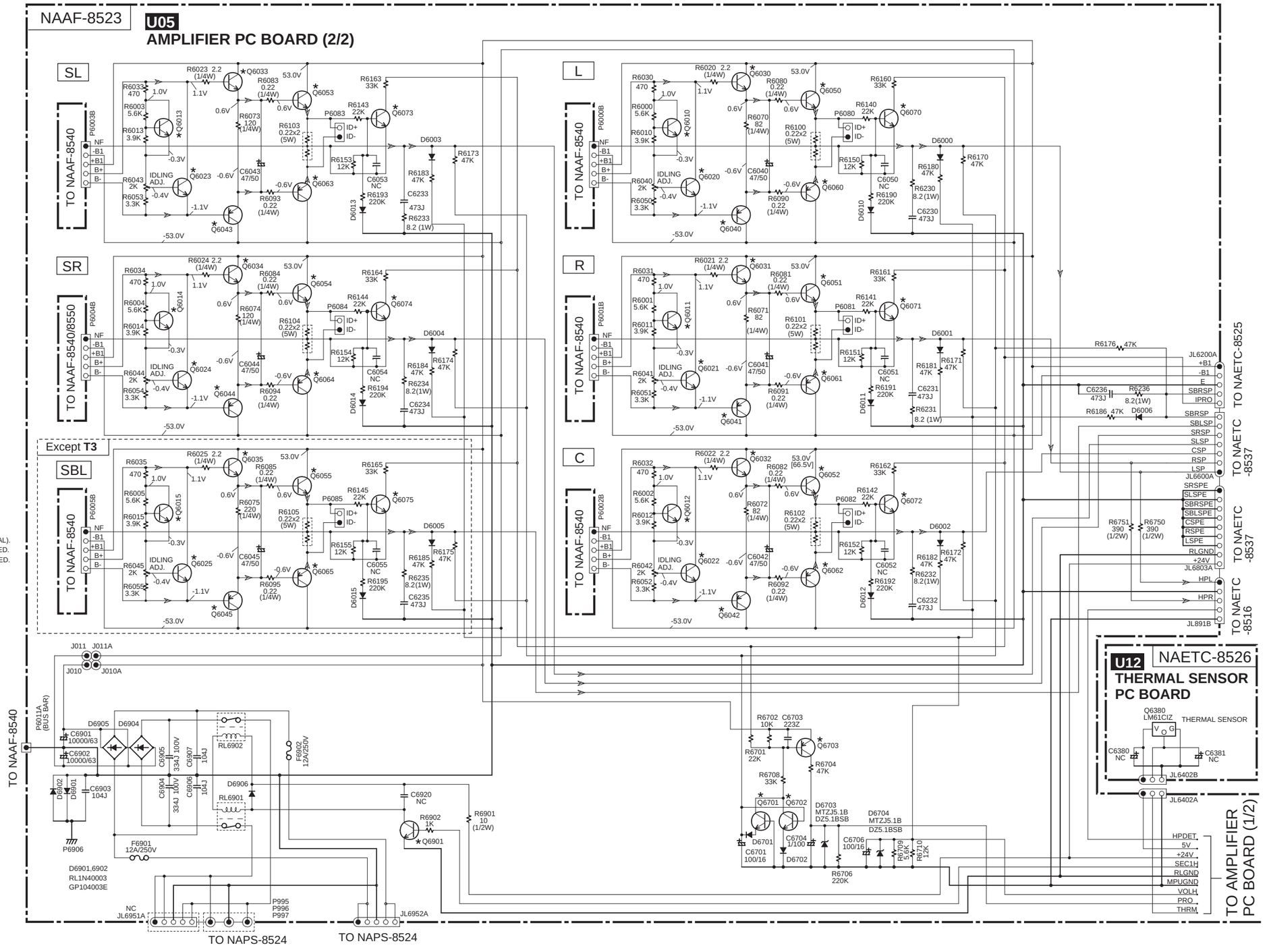
| CIRCUIT NO. | DESCRIPTION |
|---|---|
| Q6010 - 6016 | 2SC1740S-S |
| Q6020 - 6026 | 2SC1740S-S |
| Q6030 - 6036 | 2SC5171, 2SC5993-Q, P |
| Q6040 - 6046 | 2SA1930, 2SA2140-Q, P |
| Q6070 - 6076 | 2SC2229-Y |
| Q6701, 6702 | 2SC2240-GR, BL, KTC3200-GR, BL |
| Q6703 | KTA1268-BL, GR, 2SA992-E, F<br>2SA1123-R |
| Q6050 - 6052 | 2SC5242-O, R |
| Q6053 - 6055 | 2SC5242-O, R, MN130S-Y, P, O |
| Q6060 - 6062 | 2SA1962-O, R |
| Q6063 - 6060 | 2SA1962-O,R, MP130S-Y, P, O |

NOTE

- THE COMPONENTS IDENTIFIED BY MARK ⚠ ARE CRITICAL FOR SAFETY REPLACE ONLY WITH PART NUMBER SPECIFIED.
- VOLTAGE (MEASURED WITH VOLTMETER) ⟨ ⟩ IS DC VOLTAGE.(NO INPUT SIGNAL).
- ALL PNP TRANSISTORS ARE EQUIVALENT TO 2SA1015-GR UNLESS OTHERWISE NOTED.
- ALL NPN TRANSISTORS ARE EQUIVALENT TO 2SC1815-GR UNLESS OTHERWISE NOTED.
- ALL DIODES ARE EQUIVALENT TO 1SS133 UNLESS OTHERWISE NOTED.
- ELECTROLYTIC CAPACITORS ( ⏚ ) ARE IN uF/WV.
- ALL CAPACITORS ARE IN pF/50WV UNLESS OTHERWISE NOTED.
  EX) 030- 3pF 330- 33pF 331- 330pF 333- 0.033uF
- ALL RESISTORS ARE IN OHMS 1/4WATTS UNLESS OTHERWISE NOTED.
- THE THICK LINES ON PC BOARD ARE THE PRINTING SIDE OF THE PARTS.
  EX) PRINTING SIDE
- CIRCUIT IS SUBJECT TO CHANGE FOR IMPROVEMENT.

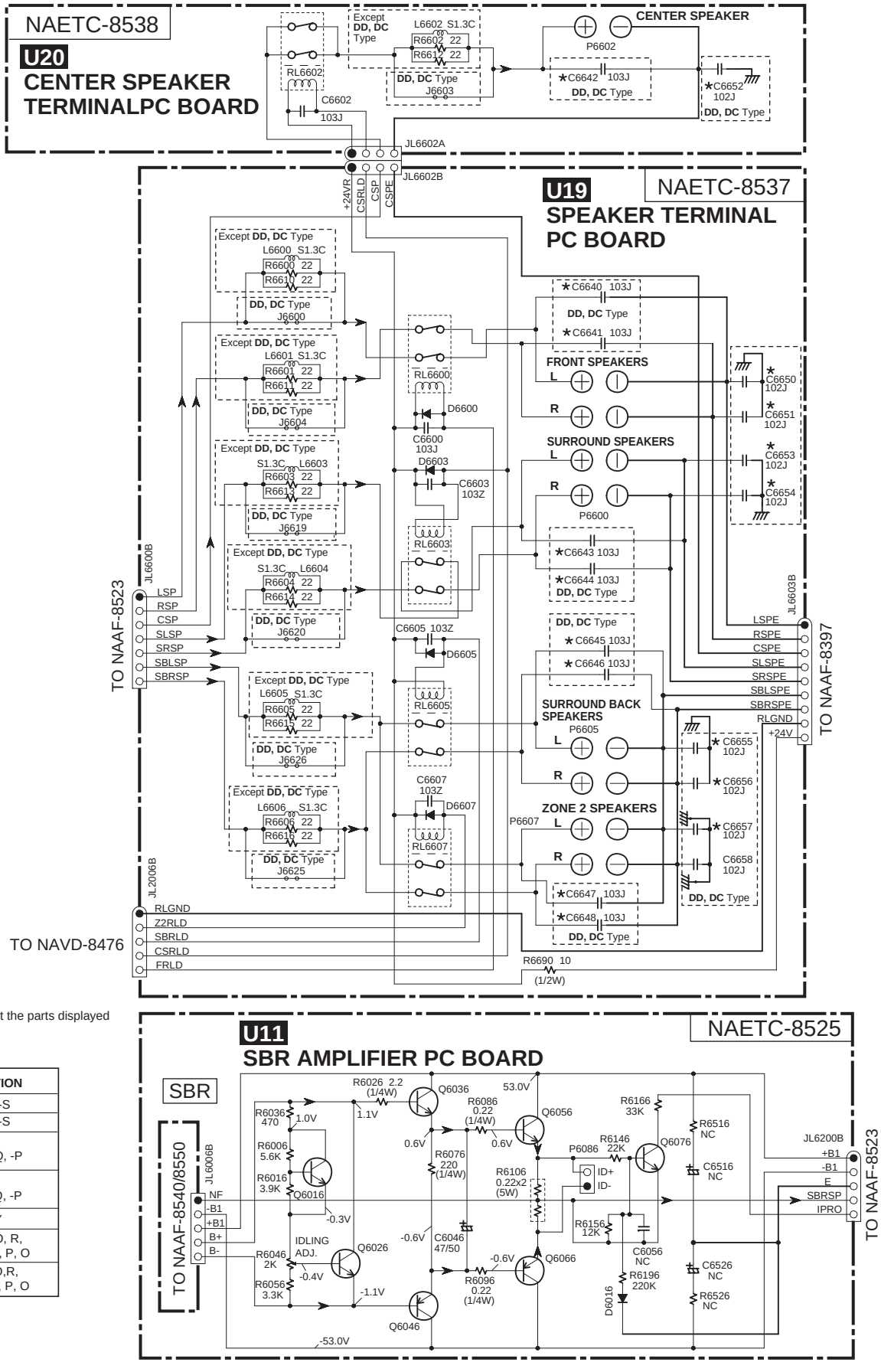
<Note>
NC=No mount of parts.

Refer to following table about the parts displayed by mark "★".



# SCHEMATIC DIAGRAMS-5

## SPEAKER TERMINAL SECTION




Refer to following table about the parts displayed by mark "★".

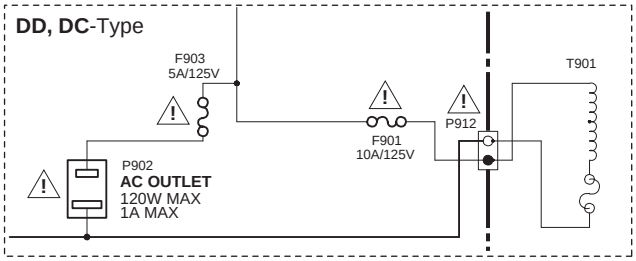
**Transistors**

| CIRCUIT NO. | DESCRIPTION |
|---|---|
| Q6016 | 2SC1740S-S |
| Q6026 | 2SC1740S-S |
| Q6036 | 2SC5171, 2SC5993-Q, -P |
| Q6046 | 2SA1930, 2SA2140-Q, -P |
| Q6076 | 2SC2229-Y |
| Q6056 | 2SC5242-O, R, MN130S-Y, P, O |
| Q6066 | 2SA1962-O,R, MP130S-Y, P, O |

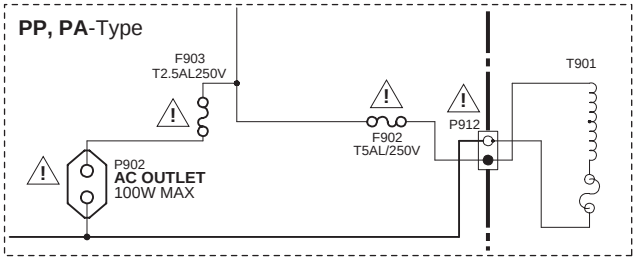
# SCHEMATIC DIAGRAMS-6

## POWER SUPPLY SECTION

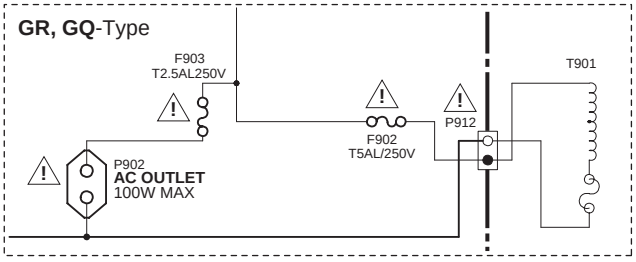
**DD, DC**-Type




**PP, PA**-Type

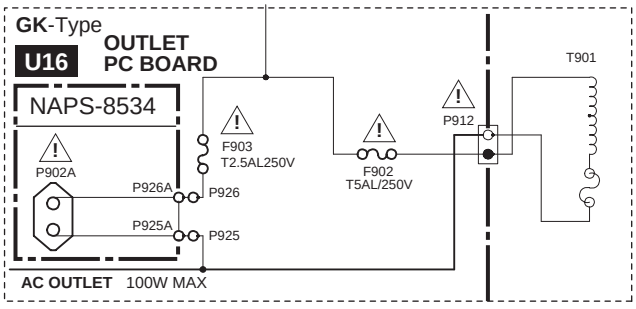



**GR, GQ**-Type

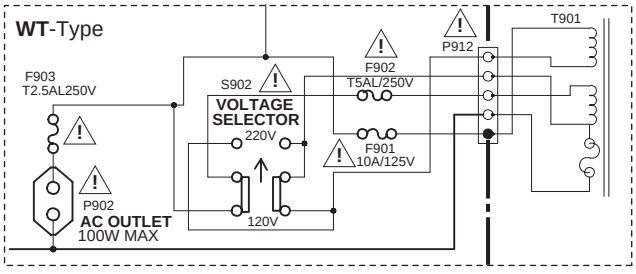



**GK**-Type

**U16** OUTLET PC BOARD




**WT**-Type




NOTE

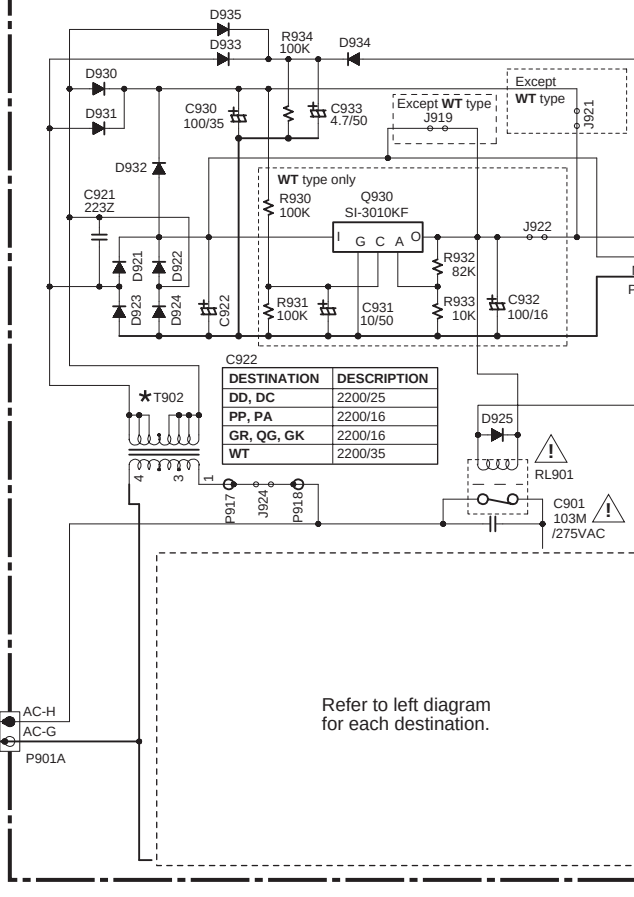
- THE COMPONENTS IDENTIFIED BY MARK ⚠ ARE CRITICAL FOR SAFETY REPLACE ONLY WITH PART NUMBER SPECIFIED.
- VOLTAGE (MEASURED WITH VOLTMETER) ⟨ ⟩ IS DC VOLTAGE.(NO IN
- ALL PNP TRANSISTORS ARE EQUIVALENT TO 2SA1015-GR UNLESS OTHERW
- ALL NPN TRANSISTORS ARE EQUIVALENT TO 2SC1815-GR UNLESS OTHERW
- ALL DIODES ARE EQUIVALENT TO 1SS133 UNLESS OTHERWISE NOTED.
- ELECTROLYTIC CAPACITORS ( ⊣⊢ ) ARE IN uF/WV.
- ALL CAPACITORS ARE IN pF/50WV UNLESS OTHERWISE NOTED.
  EX) 030- 3pF 330- 33pF 331- 330pF 333- 0.033uF
- ALL RESISTORS ARE IN OHMS 1/4WATTS UNLESS OTHERWISE NOTED.
- THE THICK LINES ON PC BOARD ARE THE PRINTING SIDE OF THE PARTS.
  EX) ⊓⊓⊓ PRINTING SIDE
- CIRCUIT IS SUBJECT TO CHANGE FOR IMPROVEMENT.

<Note>
NC=No mount of parts.

**U15**

**POWER SUPPLY-1 PC BOARD**

NAPS-




| DESTINATION | AC IN |
|---|---|
| DD, DC | 120V/60Hz |
| PP, PA | 230-240V, 50Hz |
| GR, QG, GK | 220-230V, 50/60Hz |
| WT | 120V/220V, 50/60Hz |

Refer to following table about the parts displayed by mark "✱".

T902

| DESTINATION | DESCRIPTION |
|---|---|
| DD, DC | NPT-1520JQ |
| PP, PA | NPT-1520GQ |
| GR, QG, GK | NPT-1520GQ |
| WT | NPT-1520JQ |

T901

| DESTINATION | DESCRIPTI |
|---|---|
| DD, DC | NPT-1518D |
| PP, PA | NPT-1518P |
| GR, QG, GK | NPT-1518G |
| WT | NPT-1518D |

E F G H

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HERWISE NOTED.
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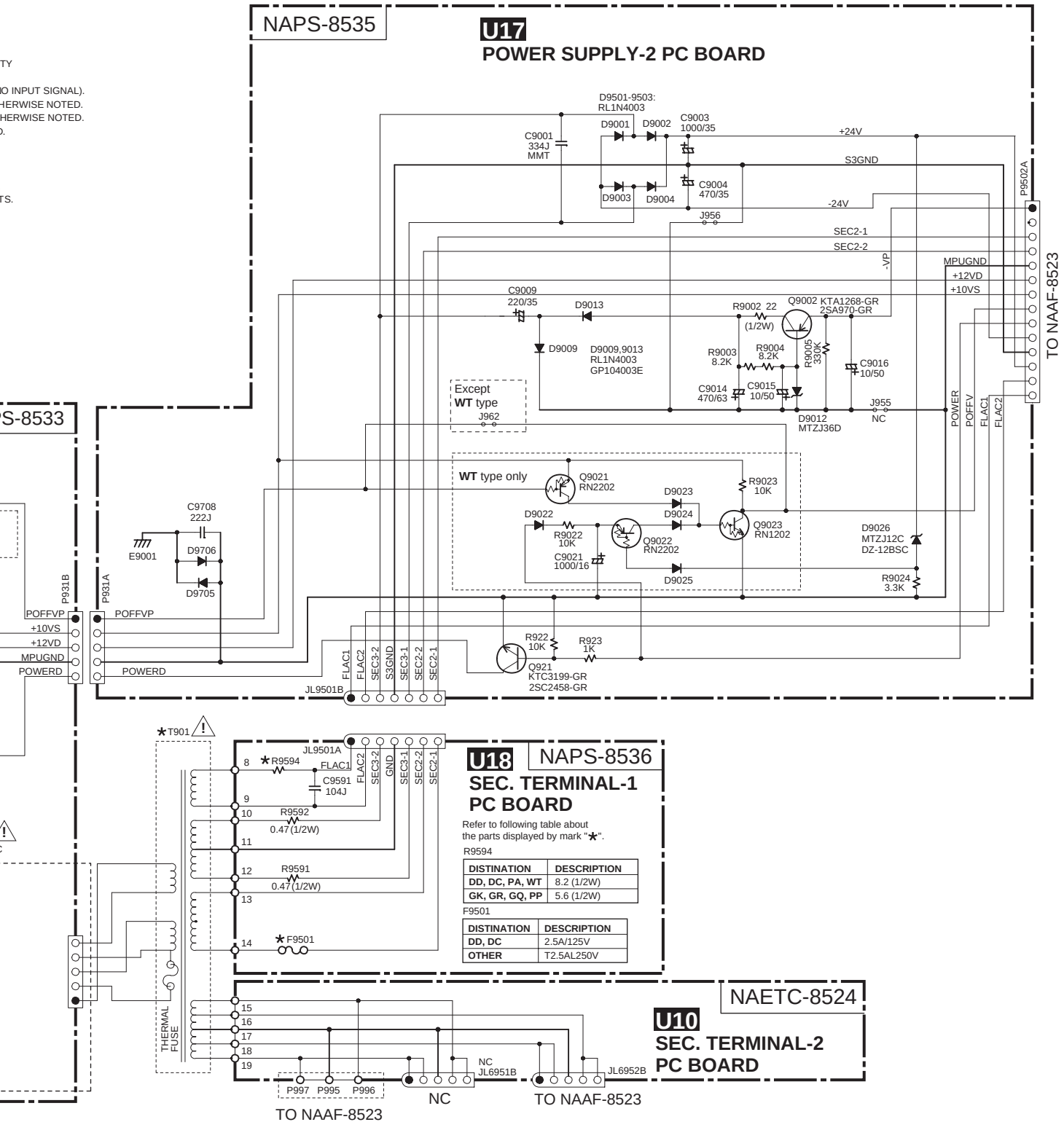
TS.

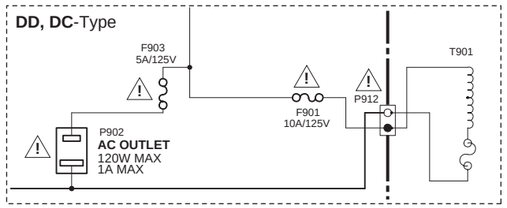



| RIPTION |
|---|
| 518D |
| 518P |
| 518G |
| 518DQ |

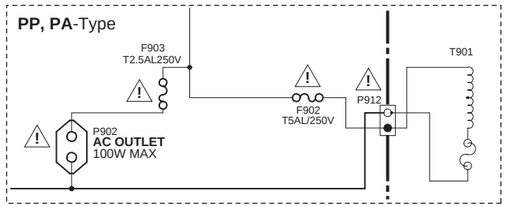
# SCHEMATIC DIAGRAMS-6

## POWER SUPPLY SECTION

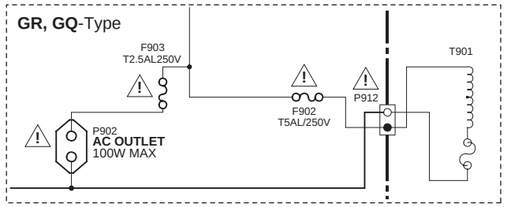
**DD, DC**-Type




**PP, PA**-Type

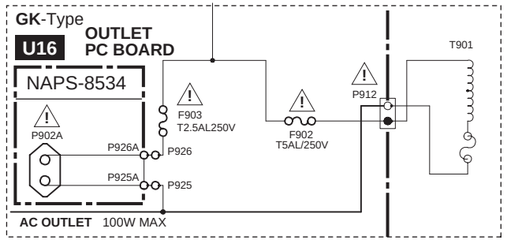



**GR, GQ**-Type

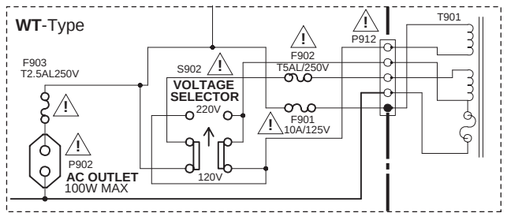



**GK**-Type

**U16** OUTLET PC BOARD




**WT**-Type




| DESTINATION | AC IN |
|---|---|
| DD, DC | 120V/60Hz |
| PP, PA | 230-240V, 50Hz |
| GR, QG, GK | 220-230V, 50/60Hz |
| WT | 120V/220V, 50/60Hz |

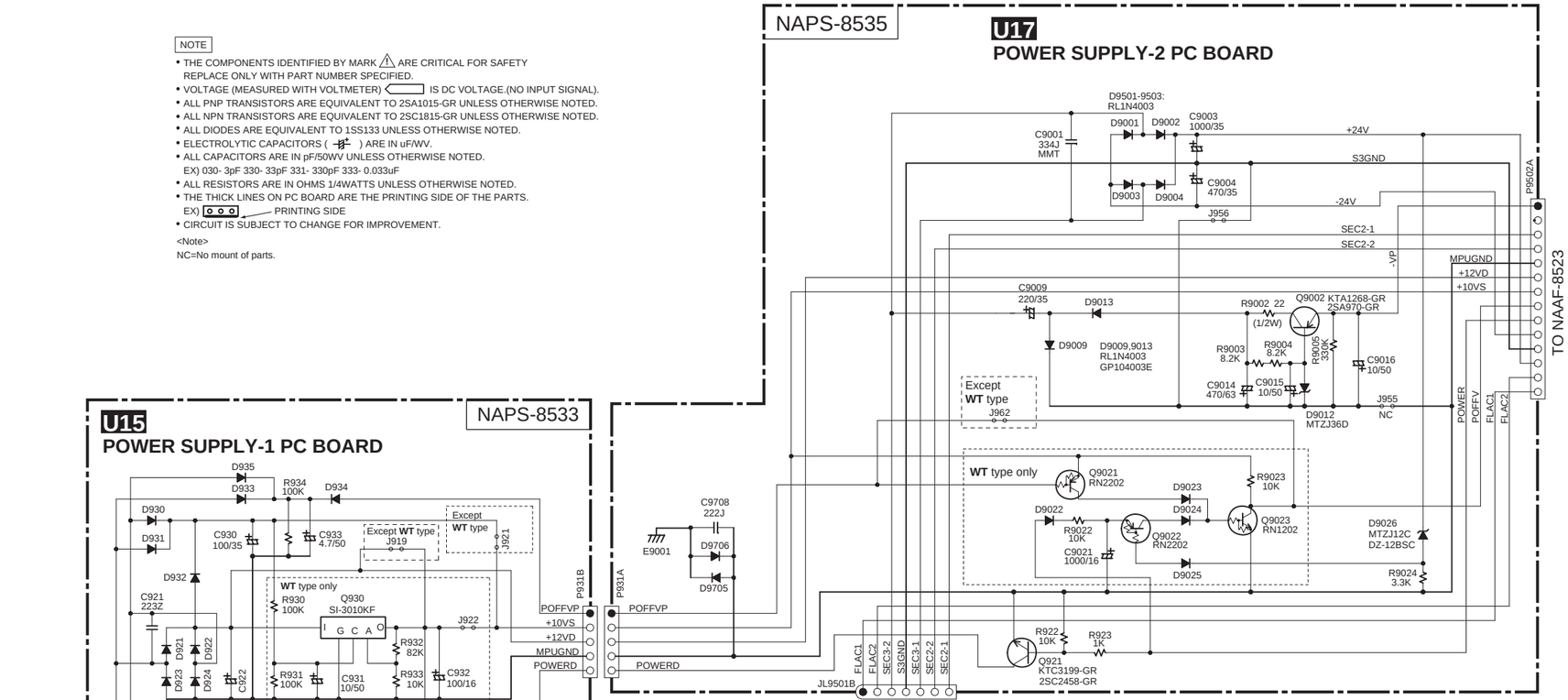
NOTE

- THE COMPONENTS IDENTIFIED BY MARK ⚠ ARE CRITICAL FOR SAFETY REPLACE ONLY WITH PART NUMBER SPECIFIED.
- VOLTAGE (MEASURED WITH VOLTMETER) ⟨ ⟩ IS DC VOLTAGE.(NO INPUT SIGNAL).
- ALL PNP TRANSISTORS ARE EQUIVALENT TO 2SA1015-GR UNLESS OTHERWISE NOTED.
- ALL NPN TRANSISTORS ARE EQUIVALENT TO 2SC1815-GR UNLESS OTHERWISE NOTED.
- ALL DIODES ARE EQUIVALENT TO 1SS133 UNLESS OTHERWISE NOTED.
- ELECTROLYTIC CAPACITORS ( ⊕ ) ARE IN uF/WV.
- ALL CAPACITORS ARE IN pF/50WV UNLESS OTHERWISE NOTED. EX) 030- 3pF 330- 33pF 331- 330pF 333- 0.033uF
- ALL RESISTORS ARE IN OHMS 1/4WATTS UNLESS OTHERWISE NOTED.
- THE THICK LINES ON PC BOARD ARE THE PRINTING SIDE OF THE PARTS. EX) ▭ PRINTING SIDE
- CIRCUIT IS SUBJECT TO CHANGE FOR IMPROVEMENT.

<Note>
NC=No mount of parts.

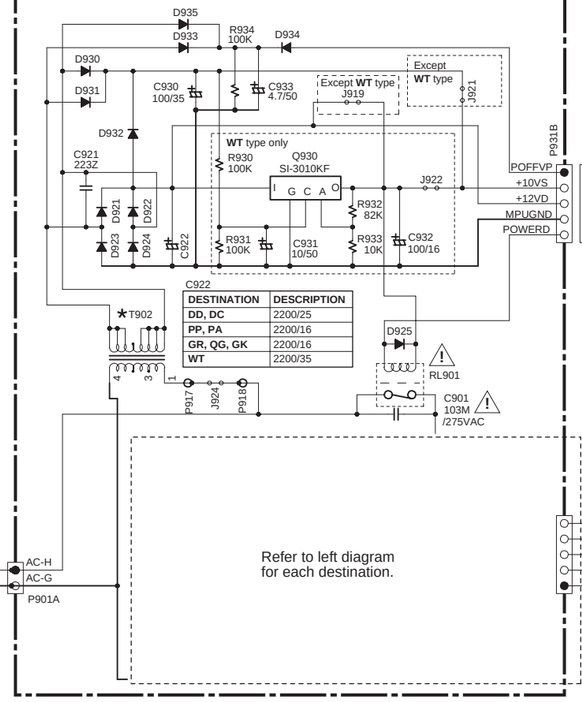
NAPS-8535

**U17**
**POWER SUPPLY-2 PC BOARD**




NAPS-8533

**U15**
**POWER SUPPLY-1 PC BOARD**




Refer to following table about the parts displayed by mark "★".

T902

| DESTINATION | DESCRIPTION |
|---|---|
| DD, DC | NPT-1520JQ |
| PP, PA | NPT-1520GQ |
| GR, QG, GK | NPT-1520GQ |
| WT | NPT-1520JQ |

T901

| DESTINATION | DESCRIPTION |
|---|---|
| DD, DC | NPT-1518D |
| PP, PA | NPT-1518P |
| GR, QG, GK | NPT-1518G |
| WT | NPT-1518DQ |

NAPS-8536

**U18**
**SEC. TERMINAL-1 PC BOARD**

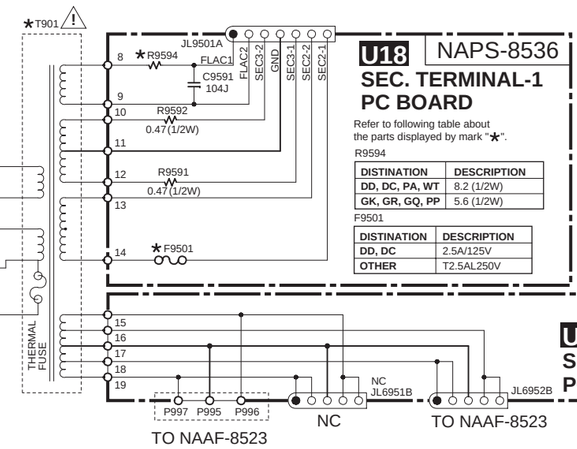
Refer to following table about the parts displayed by mark "★".

R9594

| DISTINATION | DESCRIPTION |
|---|---|
| DD, DC, PA, WT | 8.2 (1/2W) |
| GK, GR, GQ, PP | 5.6 (1/2W) |

F9501

| DISTINATION | DESCRIPTION |
|---|---|
| DD, DC | 2.5A/125V |
| OTHER | T2.5AL250V |




NAETC-8524

**U10**
**SEC. TERMINAL-2 PC BOARD**

A B C D

1 2 3 4 5

# SCHEMATIC DIAGRAMS-7

## DISPLAY SECTION

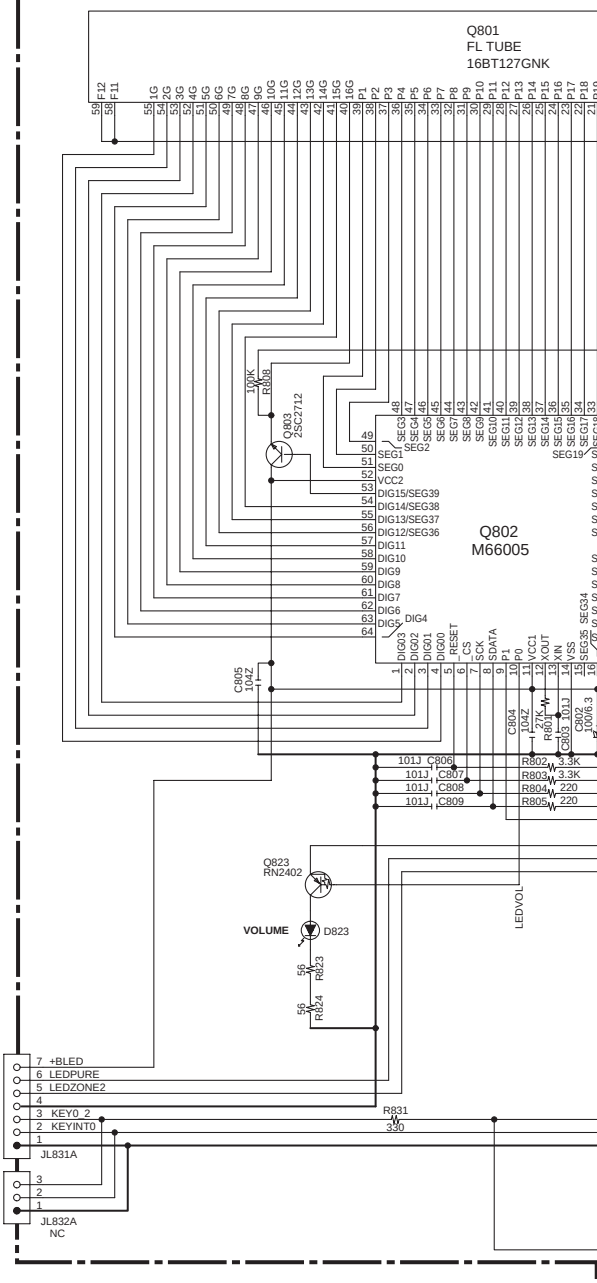
NOTE

- THE COMPONENTS IDENTIFIED BY MARK ⚠ ARE CRITICAL FOR SAFETY REPLACE ONLY WITH PART NUMBER SPECIFIED.
- VOLTAGE (MEASURED WITH VOLTMETER) ⟵ IS DC VOLTAGE.(NO INPUT SIGNAL).
- ALL PNP TRANSISTORS ARE EQUIVALENT TO 2SA1015-GR UNLESS OTHERWISE NOTED.
- ALL NPN TRANSISTORS ARE EQUIVALENT TO 2SC1815-GR UNLESS OTHERWISE NOTED.
- ALL DIODES ARE EQUIVALENT TO 1SS133 UNLESS OTHERWISE NOTED.
- ELECTROLYTIC CAPACITORS ( ⊣+ ) ARE IN uF/WV.
- ALL CAPACITORS ARE IN pF/50WV UNLESS OTHERWISE NOTED.
  EX) 030- 3pF 330- 33pF 331- 330pF 333- 0.033uF
- ALL RESISTORS ARE IN OHMS 1/4WATTS UNLESS OTHERWISE NOTED.
- THE THICK LINES ON PC BOARD ARE THE PRINTING SIDE OF THE PARTS.
  EX) ⊙⊙⊙ PRINTING SIDE
- CIRCUIT IS SUBJECT TO CHANGE FOR IMPROVEMENT.

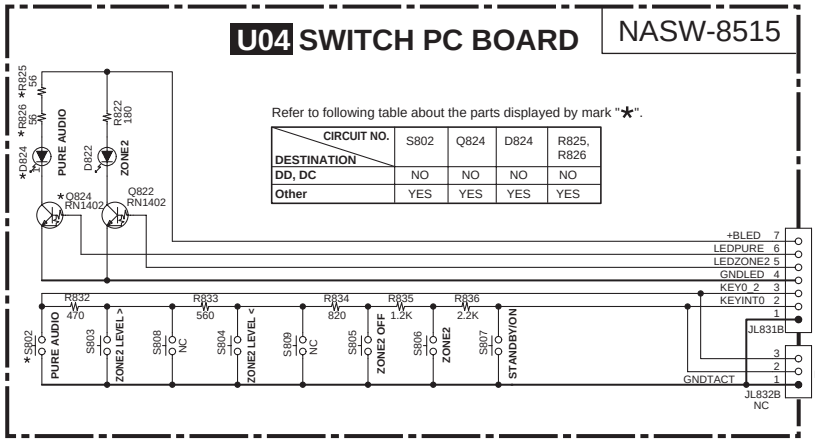
<Note>
NC=No mount of parts.

NADIS-8513

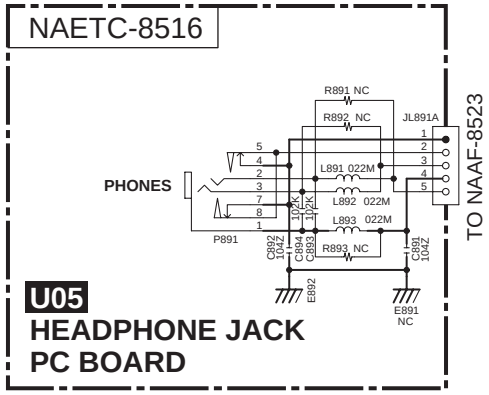
**U02 DISPLAY PC BOARD**




**U04 SWITCH PC BOARD** NASW-8515

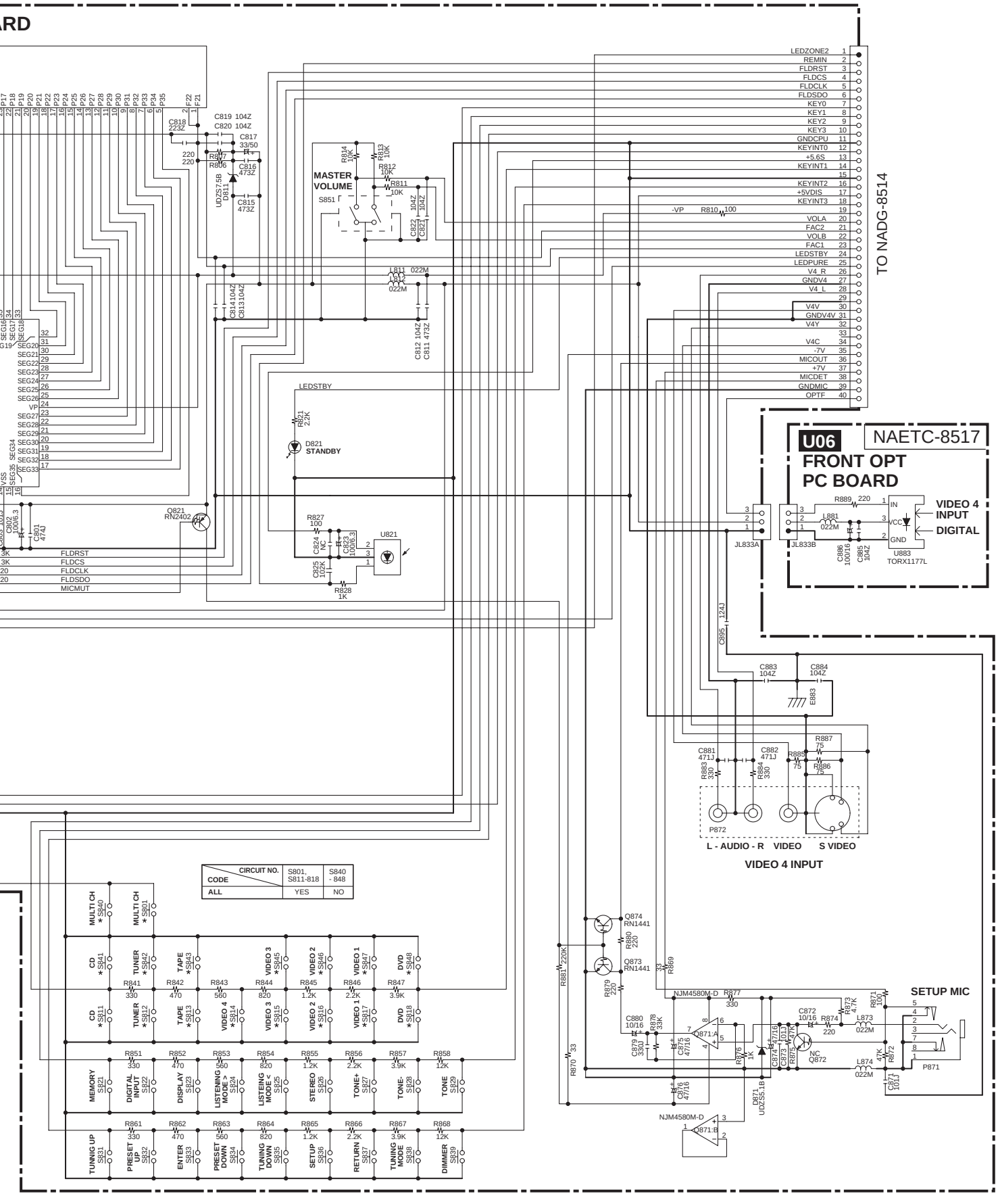



NAETC-8516




**U05**
**HEADPHONE JACK PC BOARD**

E F G H


ARD
TO NADG-8514
LEDZONE2
REMIN
FLDRST
FLDCS
FLDCLK
FLDSDO
KEY0
KEY1
KEY2
KEY3
GNDCPU
KEYINT0
+5.6S
KEYINT1
KEYINT2
+5VDIS
KEYINT3
VOLA
FAC2
VOLB
FAC1
LEDSTBY
LEDPURE
V4_R
GNDV4
V4_L
V4V
GNDV4V
V4Y
V4C
-7V
MICOUT
+7V
MICDET
GNDMIC
OPTF
MASTER VOLUME
S851
D821 STANDBY
U06
NAETC-8517
FRONT OPT PC BOARD
VIDEO 4 INPUT
DIGITAL
JL833A
JL833B
U883 TORX1177L
P872
L - AUDIO - R
VIDEO
S VIDEO
VIDEO 4 INPUT
SETUP MIC
P871
NJM4580M-D
CIRCUIT NO.
CODE
ALL
S801, S811-818
S840 - 848
YES
NO
MULTI CH *S840
MULTI CH *S801
CD *S941
TUNER *S942
TAPE *S943
VIDEO 3 *S945
VIDEO 2 *S946
VIDEO 1 *S947
DVD *S948
CD *S911
TUNER *S912
TAPE *S913
VIDEO 4 *S914
VIDEO 3 *S915
VIDEO 2 *S916
VIDEO 1 *S917
DVD *S918
MEMORY S921
DIGITAL INPUT S922
DISPLAY S923
LISTENING MODE > S924
LISTENING MODE < S925
STEREO S926
TONE+ S927
TONE- S928
TONE S929
TUNING UP S931
PRESET UP S932
ENTER S933
PRESET DOWN S934
TUNING DOWN S935
SETUP S936
RETURN S937
TUNING MODE S938
DIMMER S939

# SCHEMATIC DIAGRAMS-7

## DISPLAY SECTION

NOTE

- THE COMPONENTS IDENTIFIED BY MARK ⚠ ARE CRITICAL FOR SAFETY REPLACE ONLY WITH PART NUMBER SPECIFIED.
- VOLTAGE (MEASURED WITH VOLTMETER) ⟨ ⟩ IS DC VOLTAGE.(NO INPUT SIGNAL).
- ALL PNP TRANSISTORS ARE EQUIVALENT TO 2SA1015-GR UNLESS OTHERWISE NOTED.
- ALL NPN TRANSISTORS ARE EQUIVALENT TO 2SC1815-GR UNLESS OTHERWISE NOTED.
- ALL DIODES ARE EQUIVALENT TO 1SS133 UNLESS OTHERWISE NOTED.
- ELECTROLYTIC CAPACITORS ( ) ARE IN uF/WV.
- ALL CAPACITORS ARE IN pF/50WV UNLESS OTHERWISE NOTED. EX) 030- 3pF 330- 33pF 331- 330pF 333- 0.033uF
- ALL RESISTORS ARE IN OHMS 1/4WATTS UNLESS OTHERWISE NOTED.
- THE THICK LINES ON PC BOARD ARE THE PRINTING SIDE OF THE PARTS. EX) PRINTING SIDE
- CIRCUIT IS SUBJECT TO CHANGE FOR IMPROVEMENT.

<Note>
NC=No mount of parts.

NADIS-8513

**U02 DISPLAY PC BOARD**

Q801
FL TUBE
16BT127GNK

Q802
M66005

Q803
2SC2712

MASTER VOLUME
S851

LEDSTBY
D821 STANDBY

VOLUME D823

Q821 RN2402
Q823 RN2402

FLDRST
FLDCS
FLDCLK
FLDSDO
MICMUT
LEDVOL

TO NADG-8514

NAETC-8517

**U06 FRONT OPT PC BOARD**

VIDEO 4 INPUT
DIGITAL

JL833A
JL833B
U883 TORX1177L

L - AUDIO - R VIDEO S VIDEO
VIDEO 4 INPUT

SETUP MIC

NJM4580M-D

**U04 SWITCH PC BOARD** NASW-8515

Refer to following table about the parts displayed by mark "★".

| CIRCUIT NO. / DESTINATION | S802 | Q824 | D824 | R825, R826 |
|---|---|---|---|---|
| DD, DC | NO | NO | NO | NO |
| Other | YES | YES | YES | YES |

PURE AUDIO
ZONE2
ZONE2 LEVEL >
ZONE2 LEVEL <
ZONE2 OFF
STANDBY/ON

JL831B
JL832B NC
JL831A
JL832A NC

| CIRCUIT NO. / CODE | S801, S811-818 | S840 - 848 |
|---|---|---|
| ALL | YES | NO |

MULTI CH, CD, TUNER, TAPE, VIDEO 3, VIDEO 2, VIDEO 1, DVD, MEMORY, DIGITAL INPUT, DISPLAY, LISTENING MODE, STEREO, TONE+, TONE-, TONE, TUNING UP, PRESET UP, ENTER, PRESET DOWN, TUNING DOWN, SETUP, RETURN, TUNING MODE, DIMMER

NAETC-8516

**U05 HEADPHONE JACK PC BOARD**

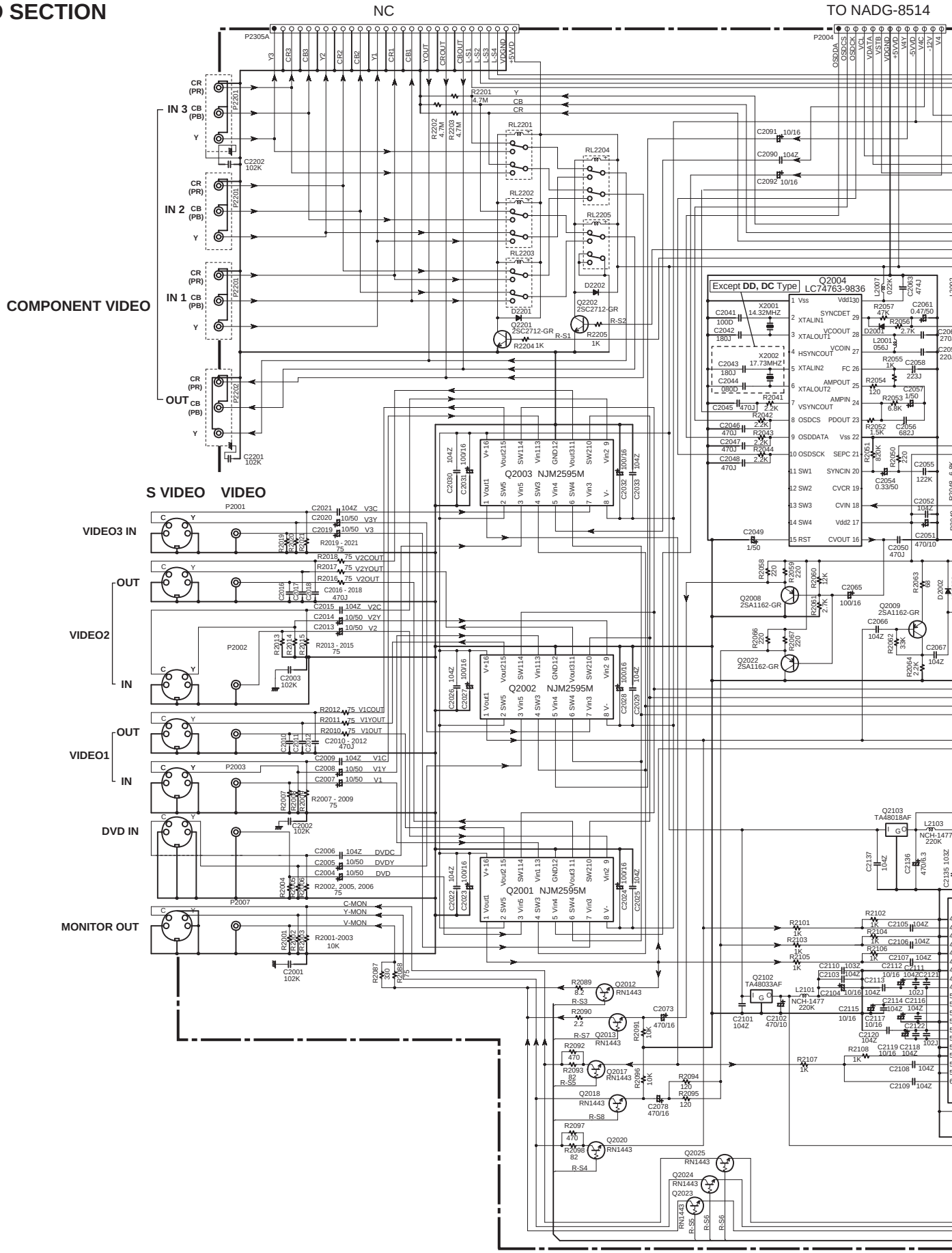
PHONES
P891
E892
E891 NC
JL891A
TO NAAF-8523

A B C D

1 2 3 4 5

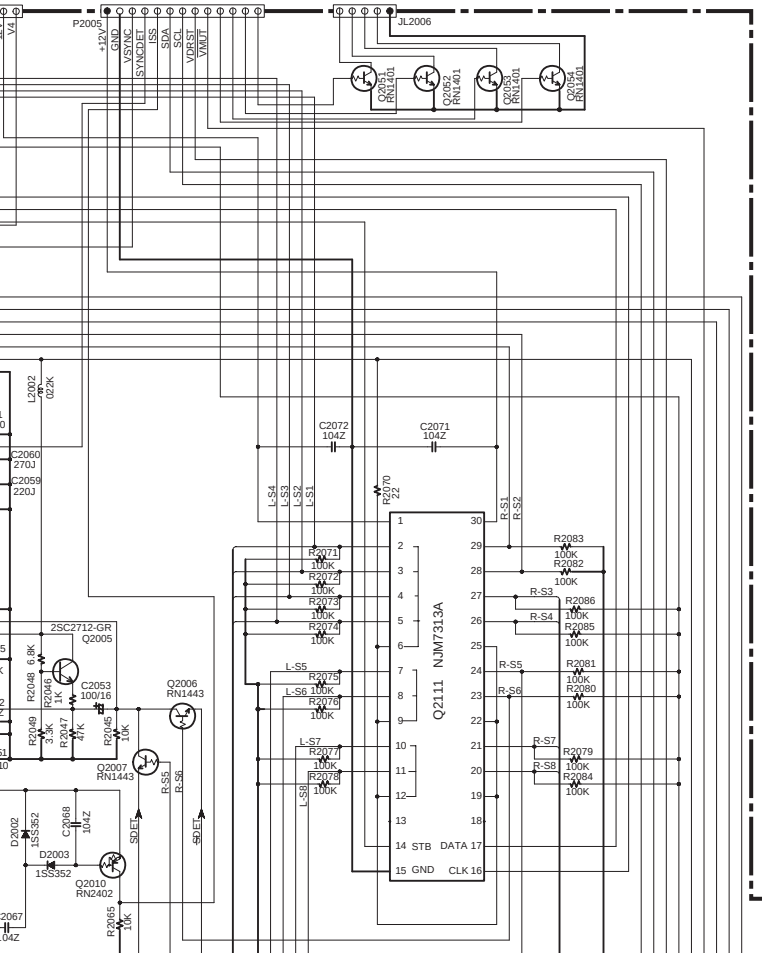
# SCHEMATIC DIAGRAMS-8

## VIDEO SECTION



E F G H

TO NADG-8514 TO NAETC-8537




NOTE

- THE COMPONENTS IDENTIFIED BY MARK ⚠ ARE CRITICAL FOR SAFETY REPLACE ONLY WITH PART NUMBER SPECIFIED.
- VOLTAGE (MEASURED WITH VOLTMETER) ⟨ ▭ IS DC VOLTAGE.(NO INPUT SIGNAL).
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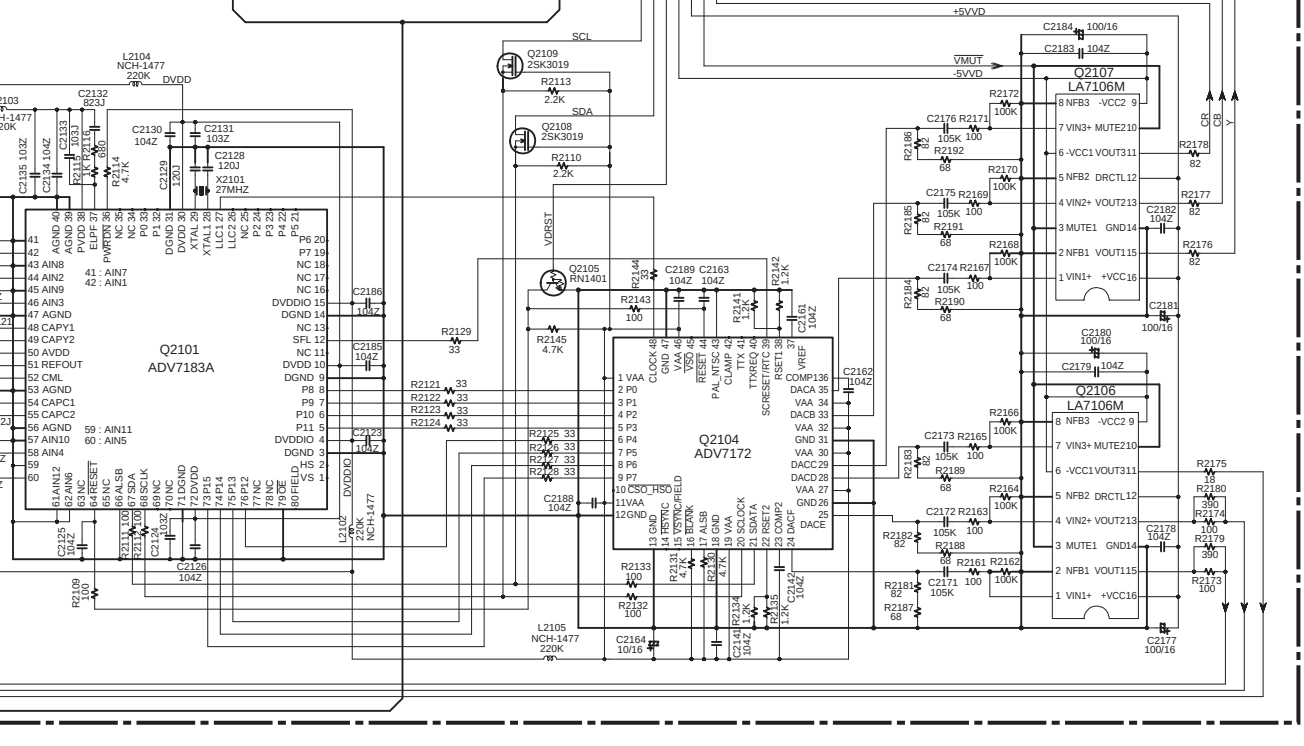
- ALL NPN TRANSISTORS ARE EQUIVALENT TO 2SC1815-GR UNLESS OTHERWISE NOTED.
- ALL DIODES ARE EQUIVALENT TO 1SS133 UNLESS OTHERWISE NOTED.
- ELECTROLYTIC CAPACITORS ( ⏚ ) ARE IN uF/WV.
- ALL CAPACITORS ARE IN pF/50WV UNLESS OTHERWISE NOTED. EX) 030- 3pF 330- 33pF 331- 330pF 333- 0.033uF
- ALL RESISTORS ARE IN OHMS 1/4WATTS UNLESS OTHERWISE NOTED.
- THE THICK LINES ON PC BOARD ARE THE PRINTING SIDE OF THE PARTS. EX) ⊙⊙⊙ PRINTING SIDE
- CIRCUIT IS SUBJECT TO CHANGE FOR IMPROVEMENT.

<Note>
NC=No mount of parts.

Refer to following table about the parts displayed by mark "★".

NAVD-8476

## U01 VIDEO PC BOARD



# SCHEMATIC DIAGRAMS-8

## VIDEO SECTION

NAVD-8476

**U01 VIDEO PC BOARD**

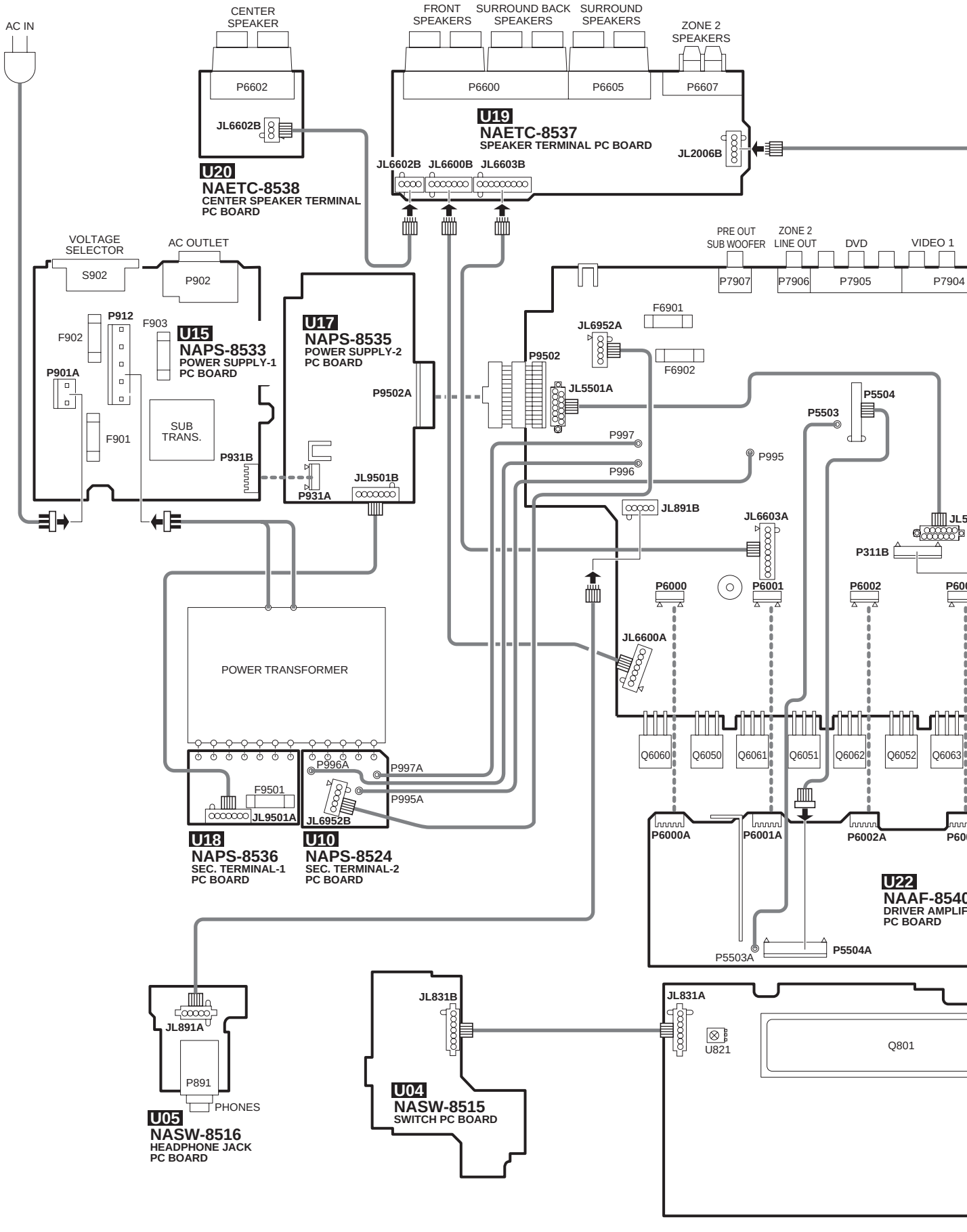
NOTE

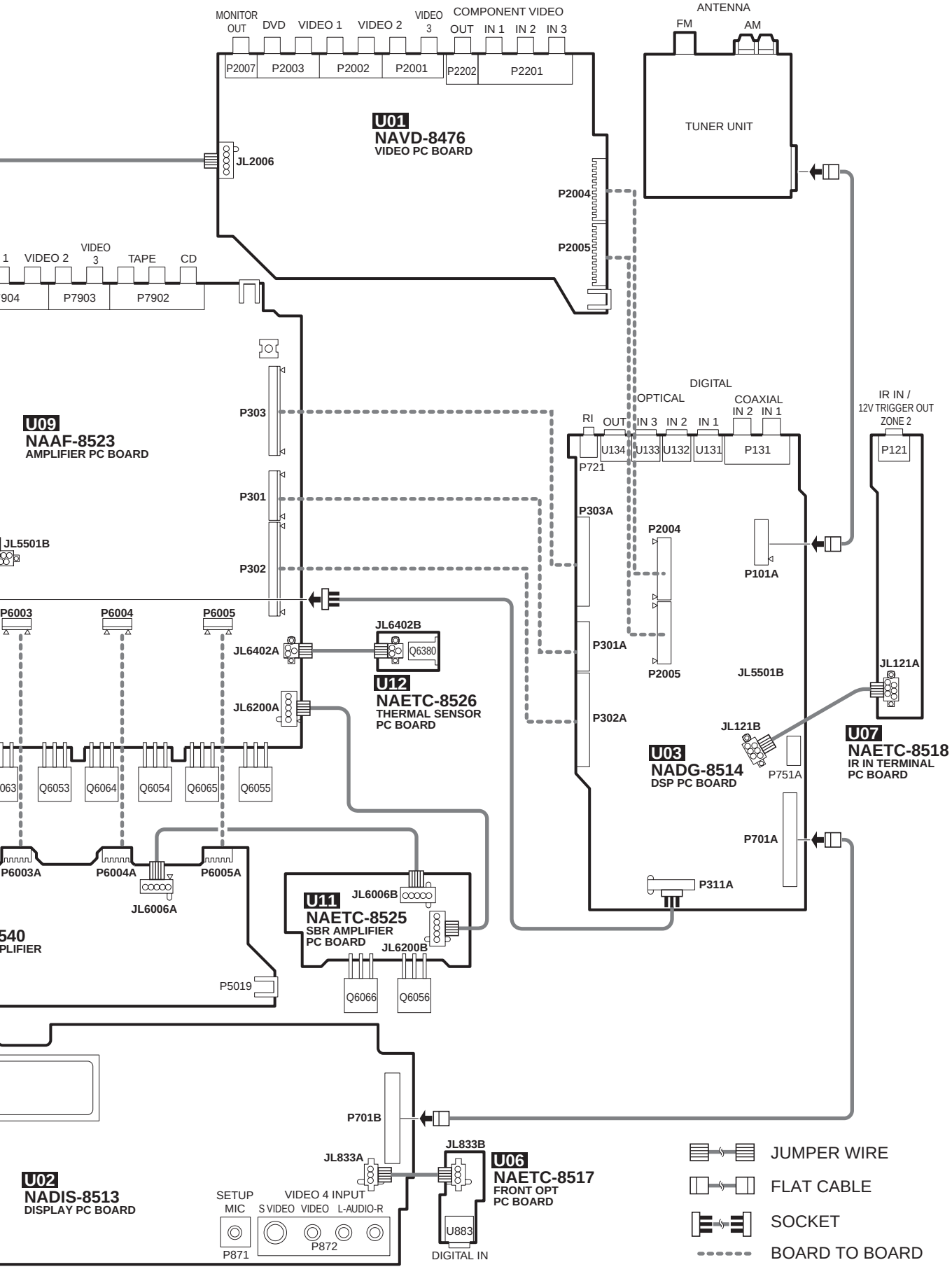
- THE COMPONENTS IDENTIFIED BY MARK ⚠ ARE CRITICAL FOR SAFETY REPLACE ONLY WITH PART NUMBER SPECIFIED.
- VOLTAGE (MEASURED WITH VOLTMETER) ⟨ ⟩ IS DC VOLTAGE.(NO INPUT SIGNAL).
- ALL PNP TRANSISTORS ARE EQUIVALENT TO 2SA1015-GR UNLESS OTHERWISE NOTED.
- ALL NPN TRANSISTORS ARE EQUIVALENT TO 2SC1815-GR UNLESS OTHERWISE NOTED.
- ALL DIODES ARE EQUIVALENT TO 1SS133 UNLESS OTHERWISE NOTED.
- ELECTROLYTIC CAPACITORS ( ⊣⊢ ) ARE IN uF/WV.
- ALL CAPACITORS ARE IN pF/50WV UNLESS OTHERWISE NOTED. EX) 030- 3pF 330- 33pF 331- 330pF 333- 0.033uF
- ALL RESISTORS ARE IN OHMS 1/4WATTS UNLESS OTHERWISE NOTED.
- THE THICK LINES ON PC BOARD ARE THE PRINTING SIDE OF THE PARTS. EX) ⊟ PRINTING SIDE
- CIRCUIT IS SUBJECT TO CHANGE FOR IMPROVEMENT.

<Note>
NC=No mount of parts.

Refer to following table about the parts displayed by mark "✱".

# PC BOARD CONNECTION DIAGRAM

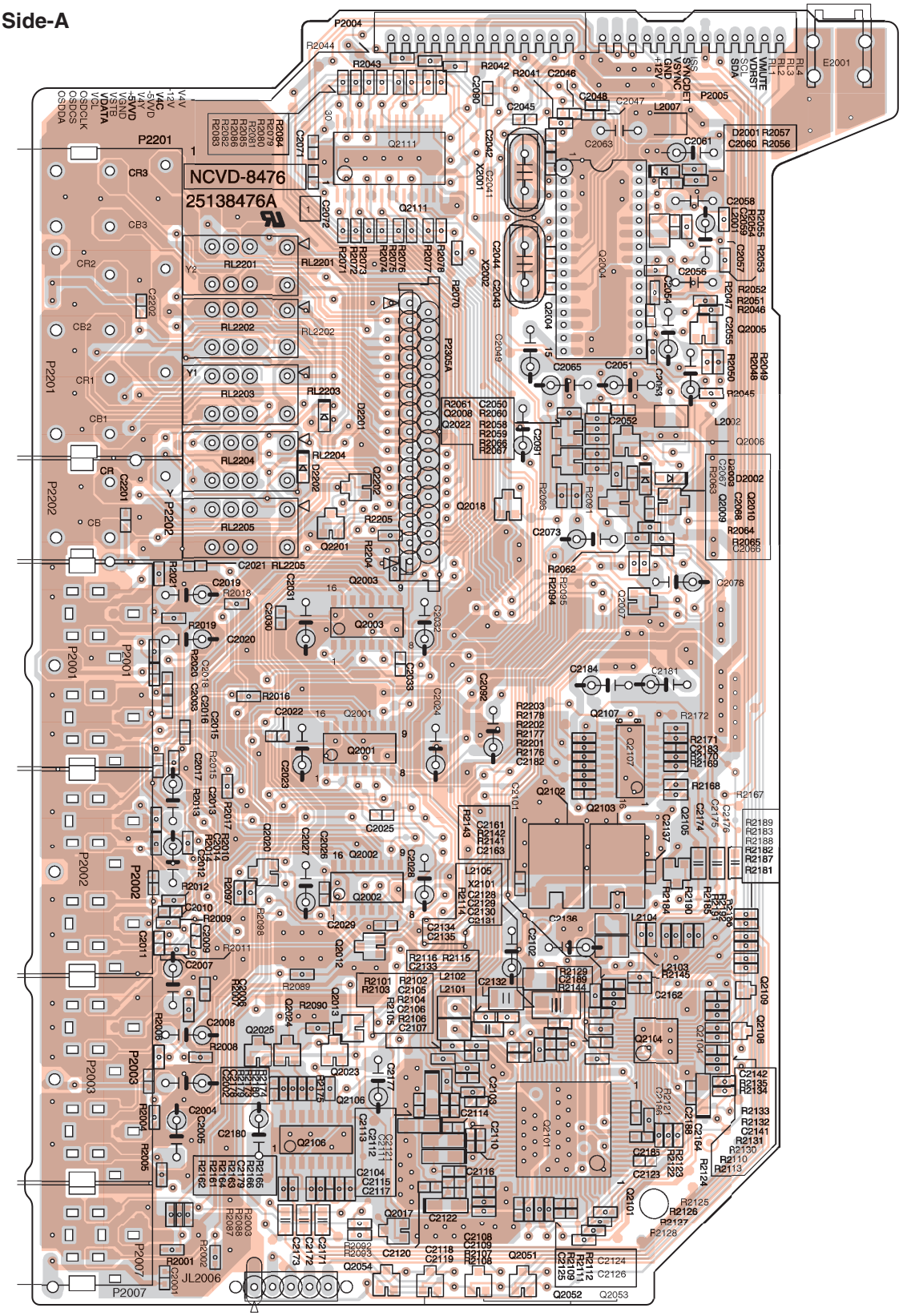



MONITOR OUT
DVD
VIDEO 1
VIDEO 2
VIDEO 3
COMPONENT VIDEO
OUT
IN 1
IN 2
IN 3
P2007
P2003
P2002
P2001
P2202
P2201
U01
NAVD-8476
VIDEO PC BOARD
JL2006
ANTENNA
FM
AM
TUNER UNIT
P2004
P2005
VIDEO 2
VIDEO 3
TAPE
CD
P7903
P7902
U09
NAAF-8523
AMPLIFIER PC BOARD
P303
P301
P302
JL5501B
DIGITAL
OPTICAL
COAXIAL
IN 2
IN 1
RI
OUT
IN 3
IN 2
IN 1
U134
U133
U132
U131
P131
P721
IR IN /
12V TRIGGER OUT
ZONE 2
P121
P303A
P2004
P101A
P301A
P2005
JL5501B
JL121A
P6003
P6004
P6005
JL6402B
JL6402A
Q6380
U12
NAETC-8526
THERMAL SENSOR
PC BOARD
JL6200A
P302A
JL121B
U03
NADG-8514
DSP PC BOARD
P751A
U07
NAETC-8518
IR IN TERMINAL
PC BOARD
Q6053
Q6064
Q6054
Q6065
Q6055
P701A
P6003A
P6004A
P6005A
JL6006A
P311A
U11
NAETC-8525
SBR AMPLIFIER
PC BOARD
JL6006B
JL6200B
P5019
Q6066
Q6056
P701B
JL833A
JL833B
U06
NAETC-8517
FRONT OPT
PC BOARD
U883
DIGITAL IN
U02
NADIS-8513
DISPLAY PC BOARD
SETUP MIC
VIDEO 4 INPUT
S VIDEO
VIDEO
L-AUDIO-R
P871
P872
JUMPER WIRE
FLAT CABLE
SOCKET
BOARD TO BOARD

# PRINTED CIRCUIT BOARD VIEWS-1

## U01 VIDEO PC BOARD (NAVD-8476)

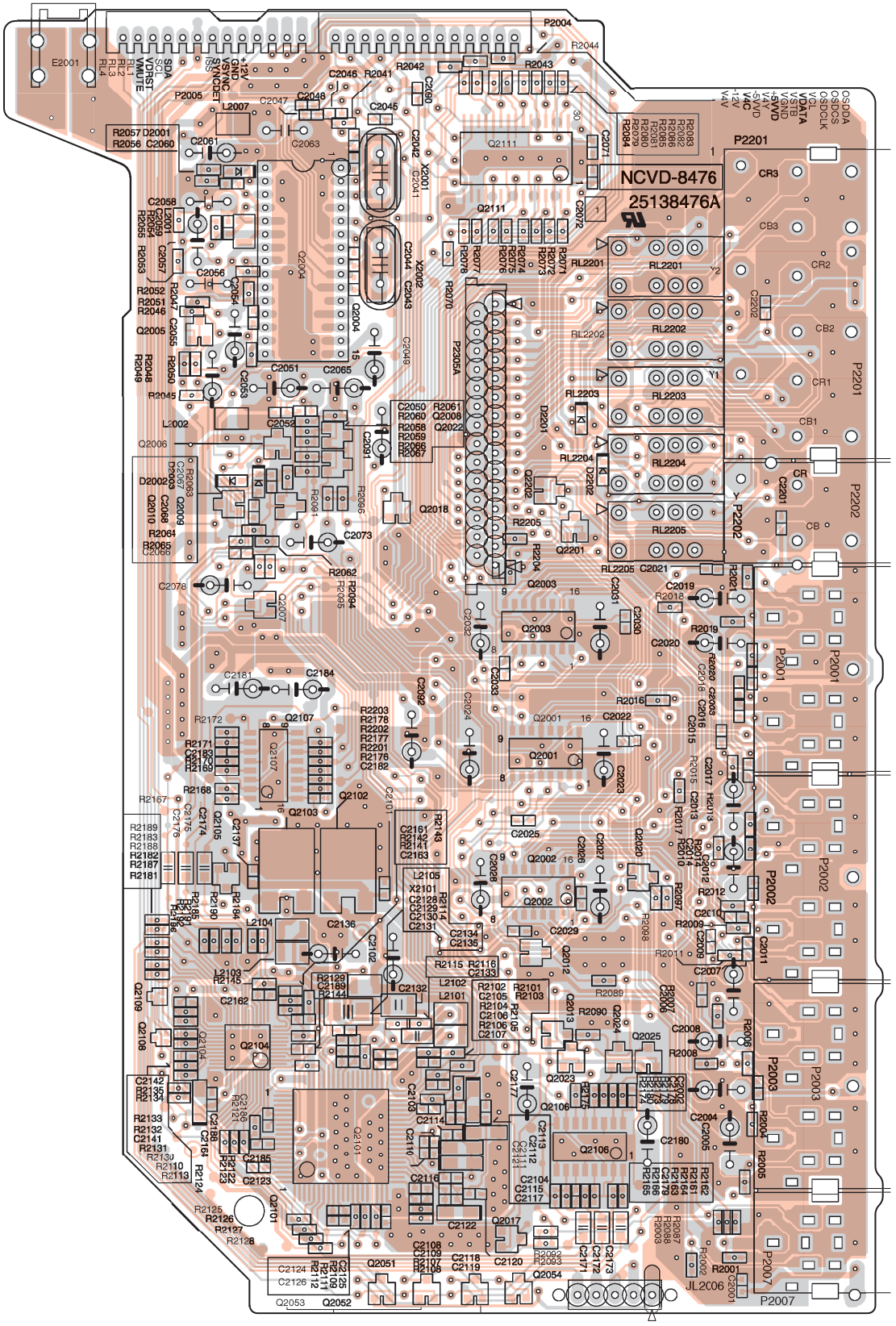
### Side-A



# PRINTED CIRCUIT BOARD VIEWS-2

## U01 VIDEO PC BOARD (NAVD-8476)

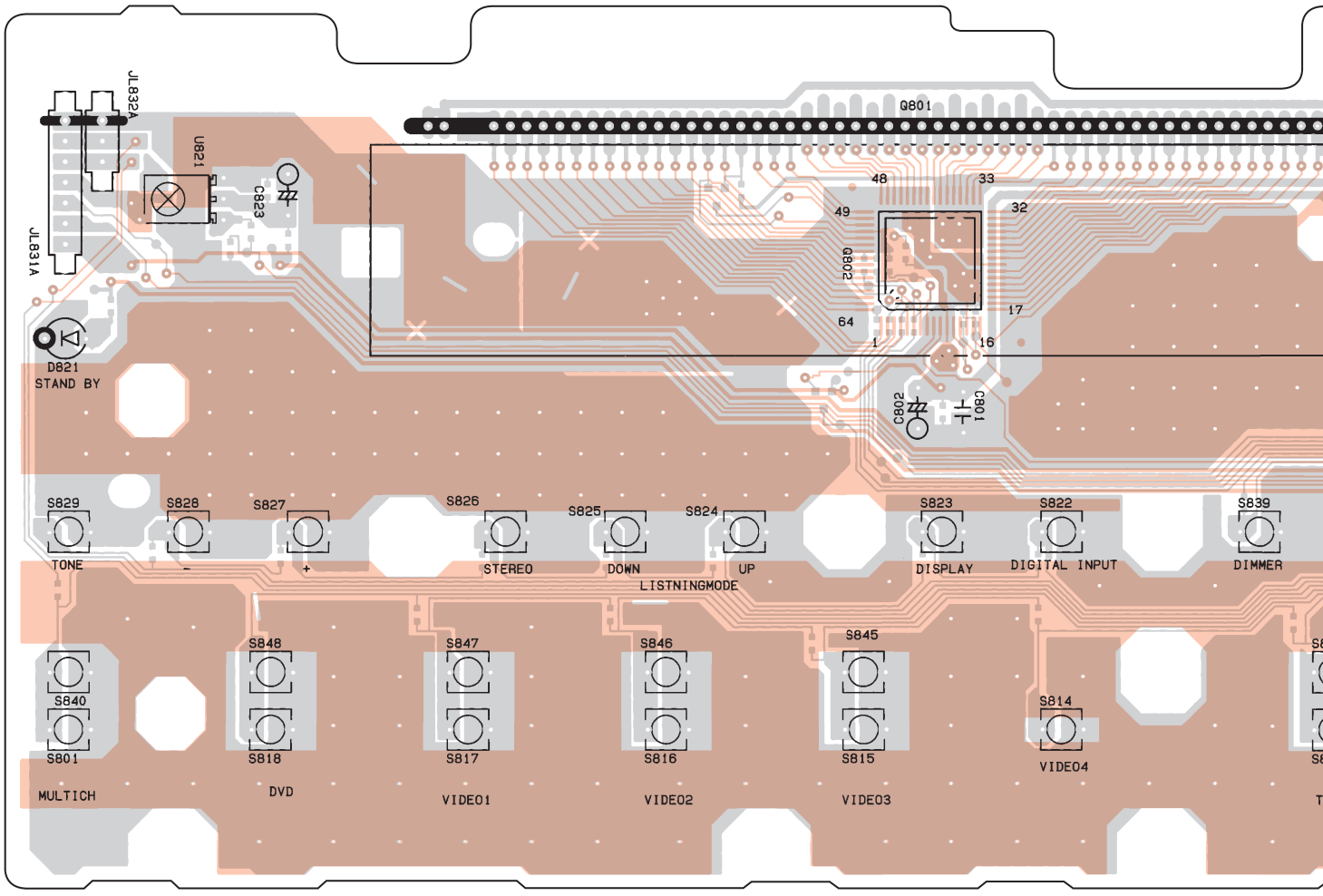
### Side-B



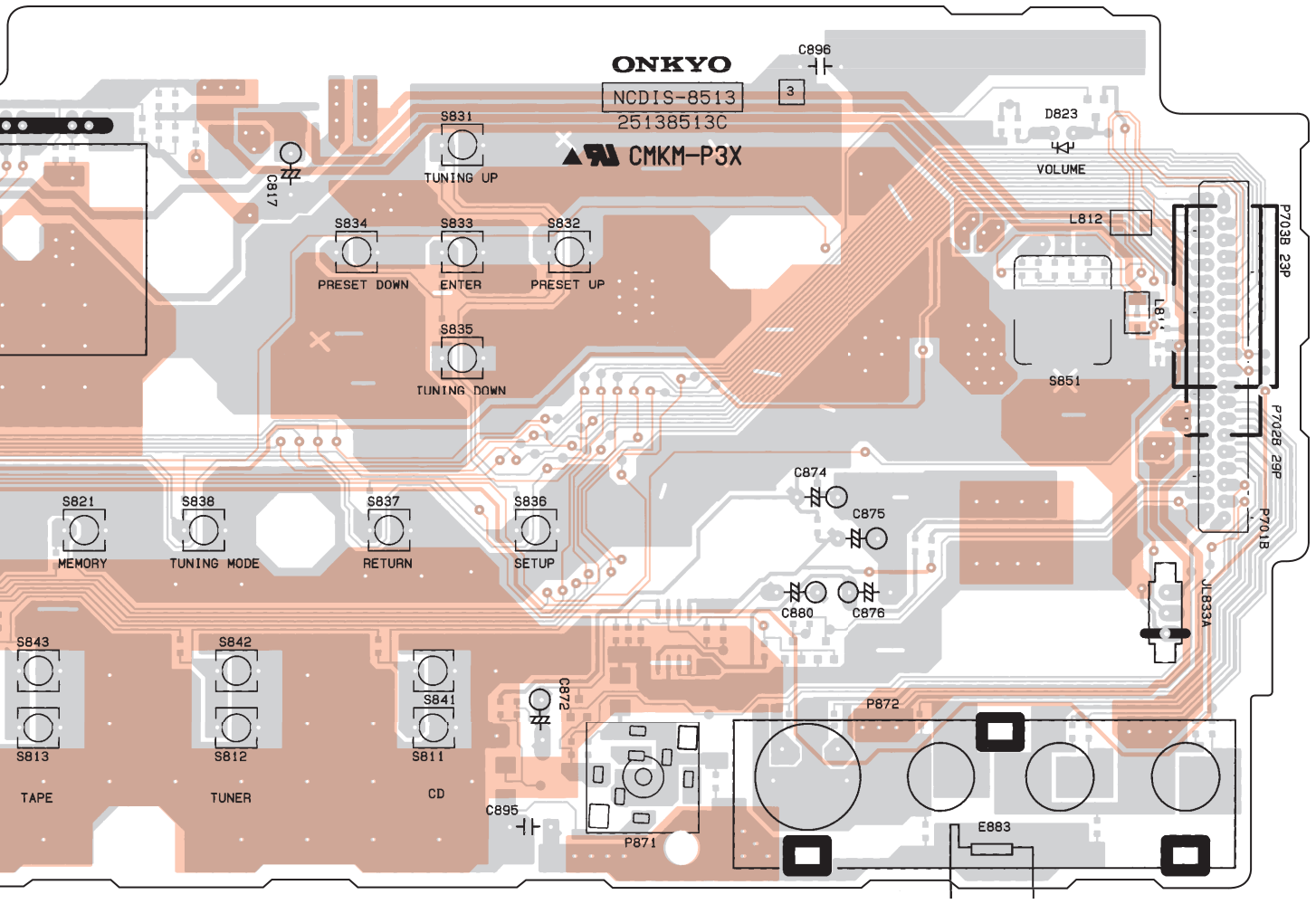
# PRINTED CIRCUIT BOARD VIEWS-3

## U02 DISPLAY PC BOARD (NADIS-8513)

### Side A



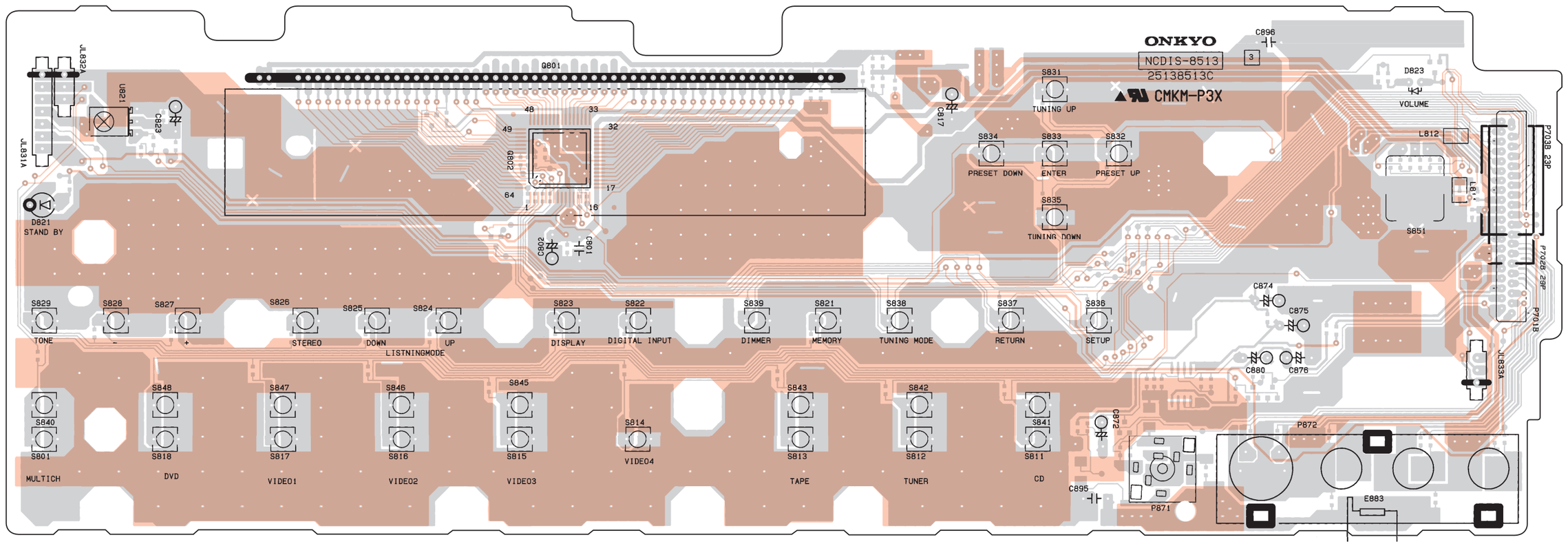
E F G H


ONKYO
NCDIS-8513
25138513C
CMKM-P3X
C896
3
D823
VOLUME
S831
TUNING UP
C817
S834
PRESET DOWN
S833
ENTER
S832
PRESET UP
S835
TUNING DOWN
L812
L811
S851
P703B 23P
P702B 29P
P701B
JL833A
C874
C875
C880
C876
S821
MEMORY
S838
TUNING MODE
S837
RETURN
S836
SETUP
S843
S813
TAPE
S842
S812
TUNER
S841
S811
CD
C872
C895
P871
P872
E883

# PRINTED CIRCUIT BOARD VIEWS-3

## U02 DISPLAY PC BOARD (NADIS-8513)

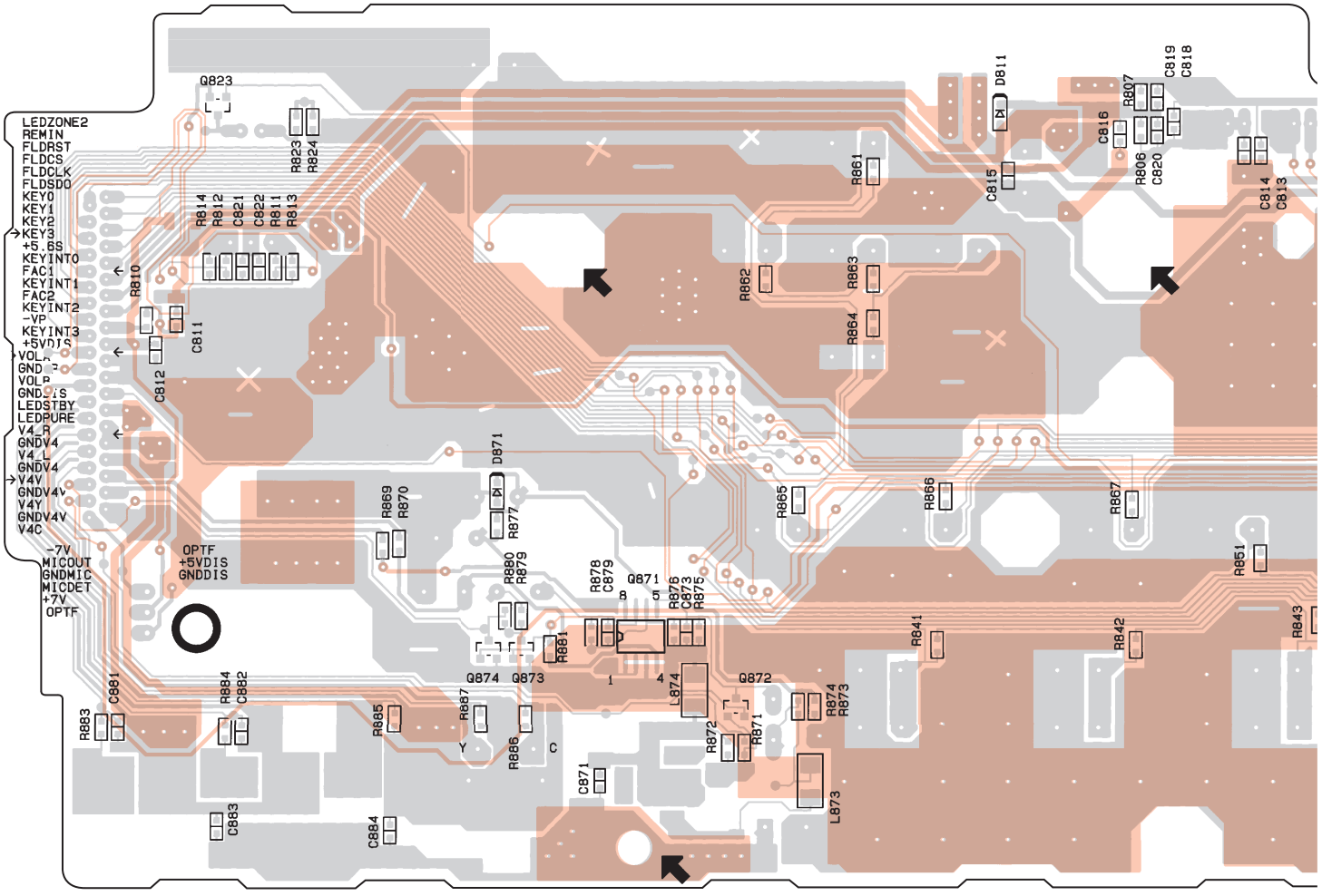
### Side A



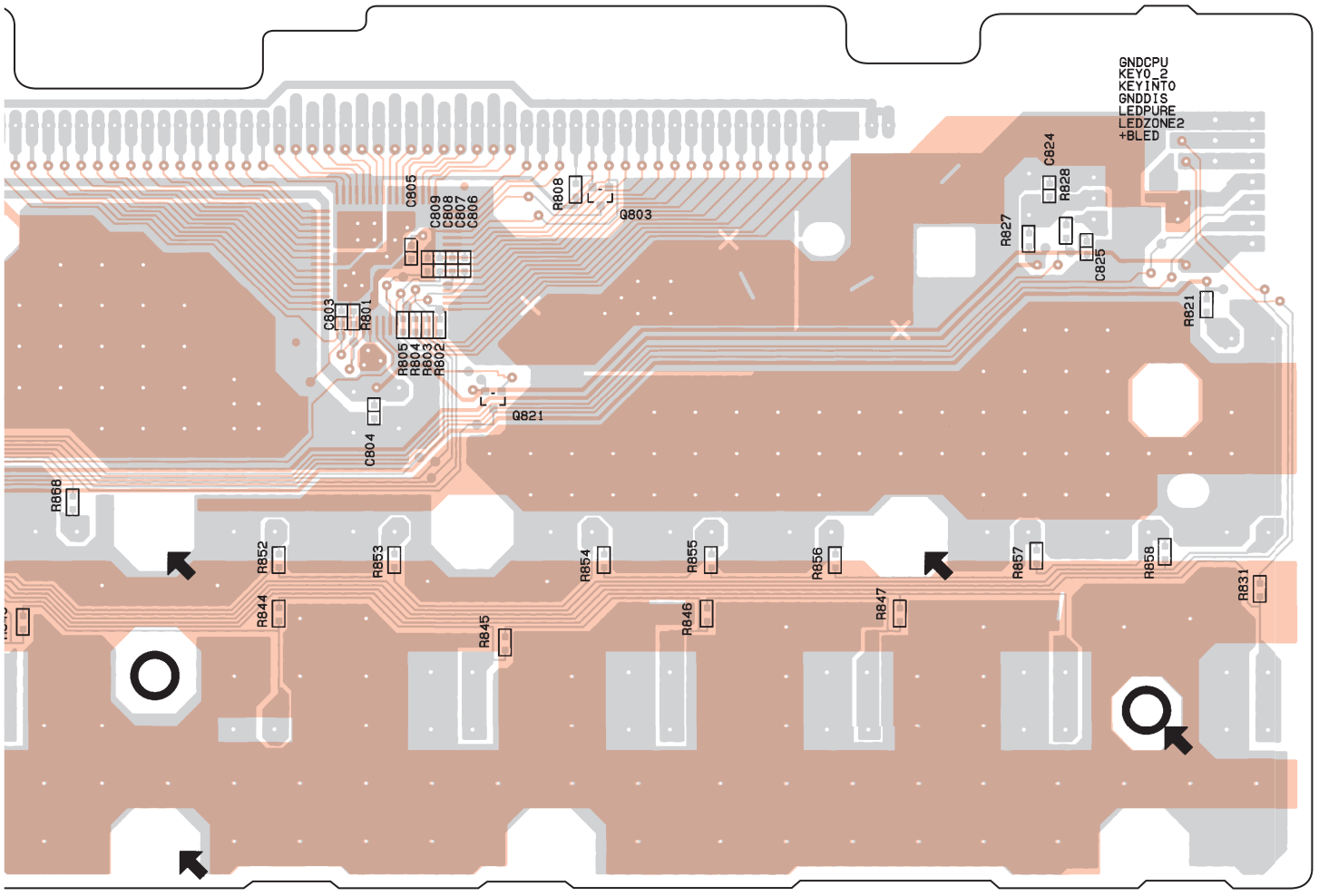
# PRINTED CIRCUIT BOARD VIEWS-4

## U02 DISPLAY PC BOARD (NADIS-8513)

### Side B



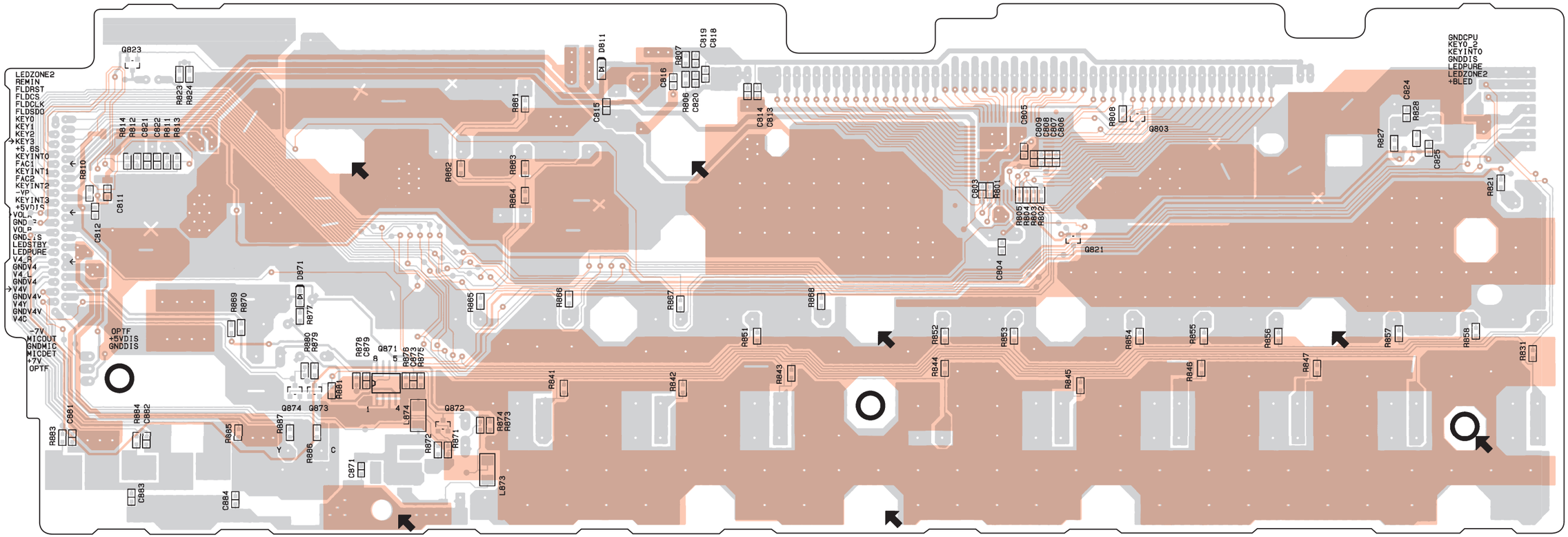
E F G H


GNDCPU
KEY0_2
KEYINT0
GNDDIS
LEDPURE
LEDZONE2
+BLED
C824
R828
R827
C825
R821
C805
C809
C808
C807
C806
R808
Q803
C803
R801
R805
R804
R803
R802
Q821
C804
R868
R852
R853
R854
R855
R856
R857
R858
R831
R844
R845
R846
R847

# PRINTED CIRCUIT BOARD VIEWS-4

## U02 DISPLAY PC BOARD (NADIS-8513)

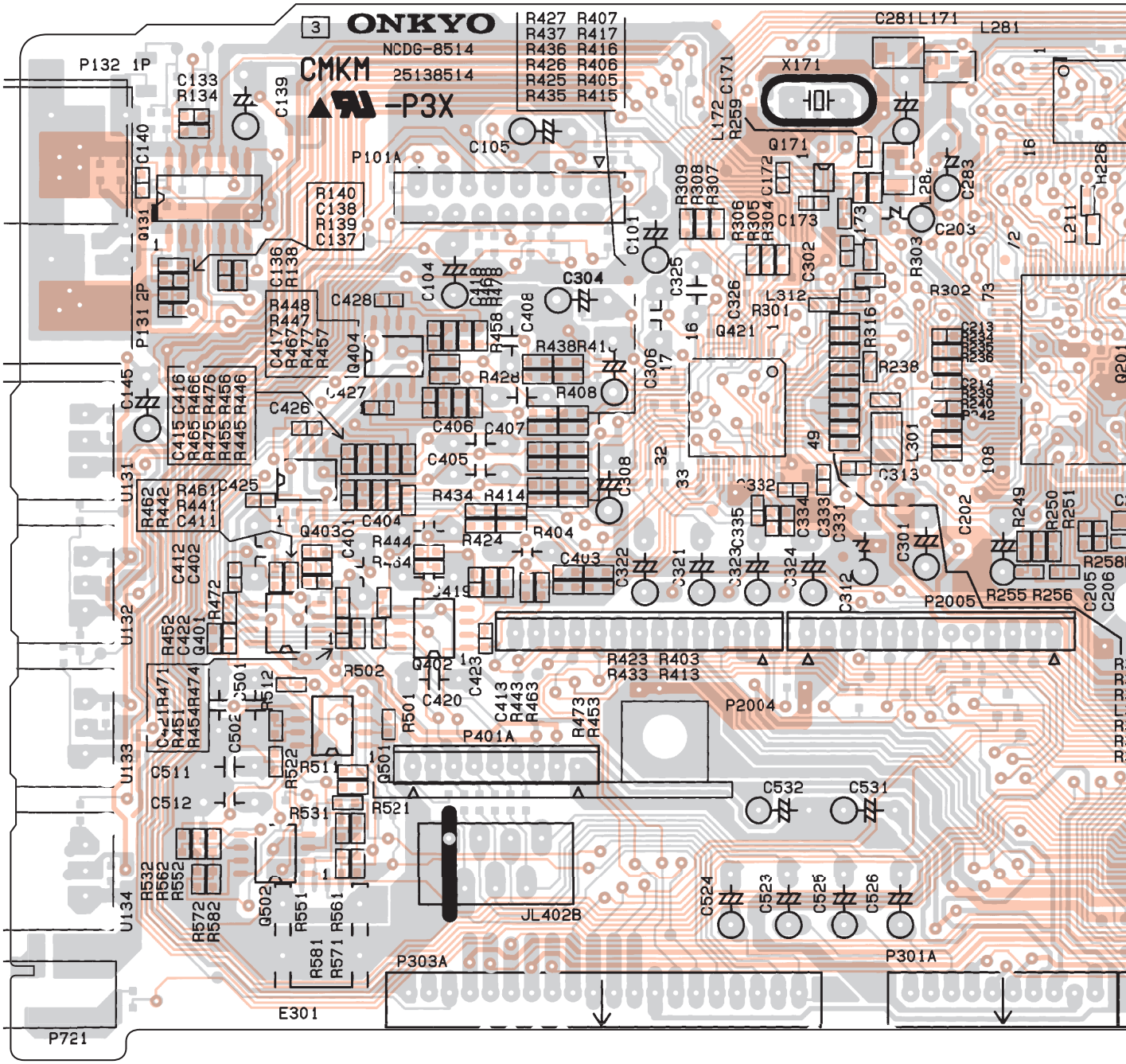
Side B



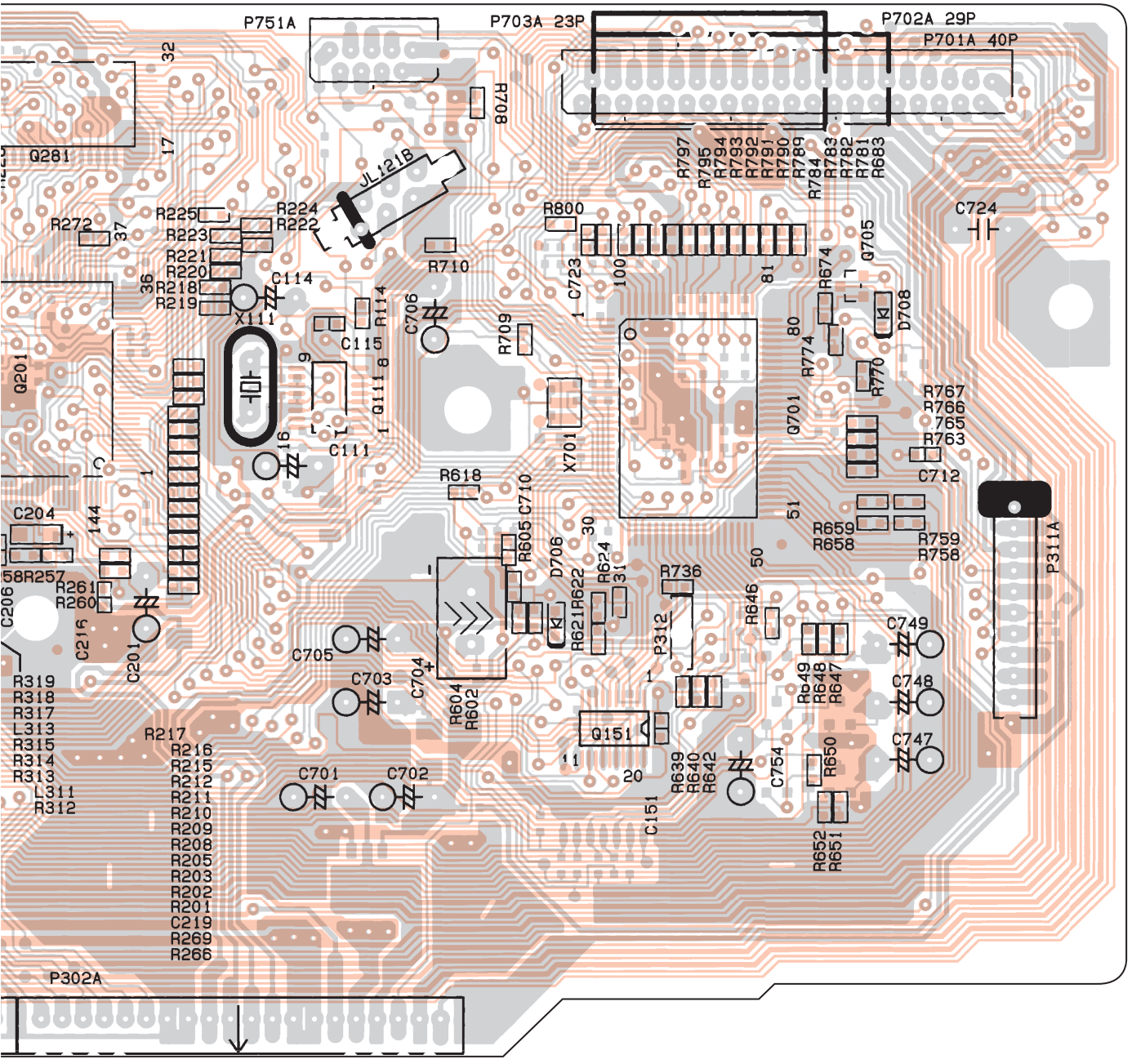
# PRINTED CIRCUIT BOARD VIEWS-5

## U03 DSP PC BOARD (NADG-8514)

### Side A



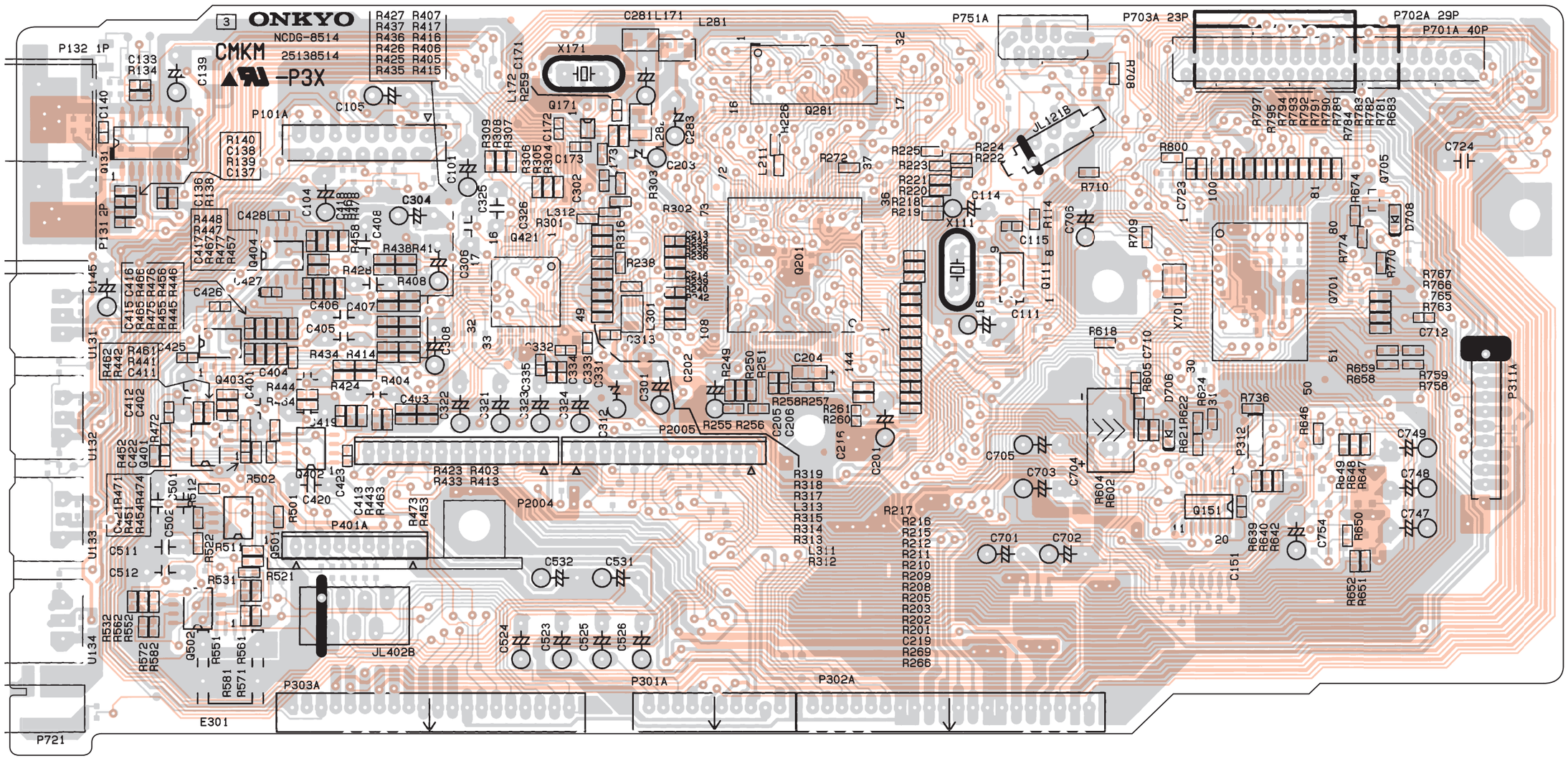
E F G H


P751A
P703A 23P
P702A 29P
P701A 40P
P302A
P311A
Q281
Q201
Q701
Q705
Q151
X111
X701
JL121B
R708
R800
R710
R709
R618
R736
R846
R272
R225
R224
R223
R222
R221
R220
R218
R219
C114
C115
C111
C706
C710
C723
C724
C204
C206
C216
C201
C705
C703
C704
C701
C702
C712
C747
C748
C749
C754
C151
D706
D708
R797
R795
R794
R793
R792
R791
R790
R789
R784
R783
R782
R781
R683
R674
R774
R770
R767
R766
765
R763
R759
R758
R659
R658
R650
R652
R651
R649
R648
R647
R639
R640
R642
R605
R604
R602
R621
R622
R624
R319
R318
R317
L313
R315
R314
R313
L311
R312
R217
R216
R215
R212
R211
R210
R209
R208
R205
R203
R202
R201
C219
R269
R266
R261
R260
58R257

# PRINTED CIRCUIT BOARD VIEWS-5

## U03 DSP PC BOARD (NADG-8514)

**Side A**


ONKYO
NCDG-8514
CMKM
25138514
-P3X
P132 1P
P131 2P
P101A
P401A
P2004
P2005
P303A
P301A
P302A
P721
E301
P751A
P703A 23P
P702A 29P
P701A 40P
P311A
JL121B
JL402B
X171
X111
Q171
Q281
Q201
Q421
Q404
Q403
Q402
Q501
Q502
Q151
Q701
L281
L171
L211
L312
L301
C281
C724
C712
C749
C748
C747
C705
C703
C702
C701
C704
C111
C114
C115
R800
R710
R709
R708
R618
R736
R767
R766
R765
R763
R759
R758
R659
R658
R646
R652
R651
R650
R639
R640
R642
R604
R602
R605
R621
R622
R624
R706
R701
R774
R674
R797
R795
R794
R793
R792
R791
R790
R789
R784
R783
R782
R781
R683
D708
D706
D705
X701
P312
C151
C754
C723
C710
R427 R407
R437 R417
R436 R416
R426 R406
R425 R405
R435 R415
R140
C138
R139
C137
C136
R138
C133
R134
C139
C140
C105
C101
C104
C304
C428
C427
C426
C425
C406
C407
C405
C404
C403
C408
C306
C308
C322
C321
C323
C335
C332
C334
C333
C331
C313
C301
C202
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C283
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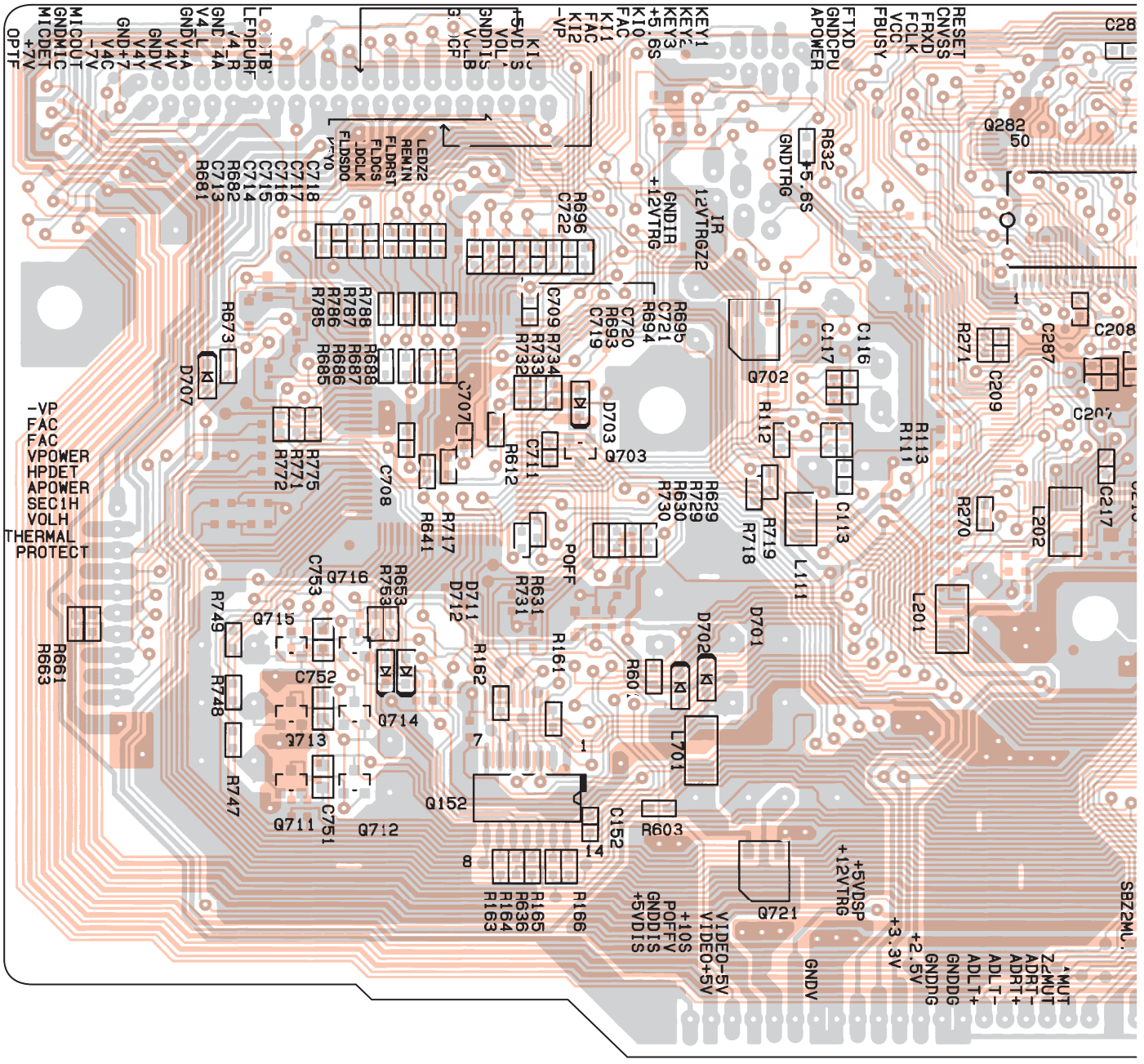
C549
C550
C551
C552

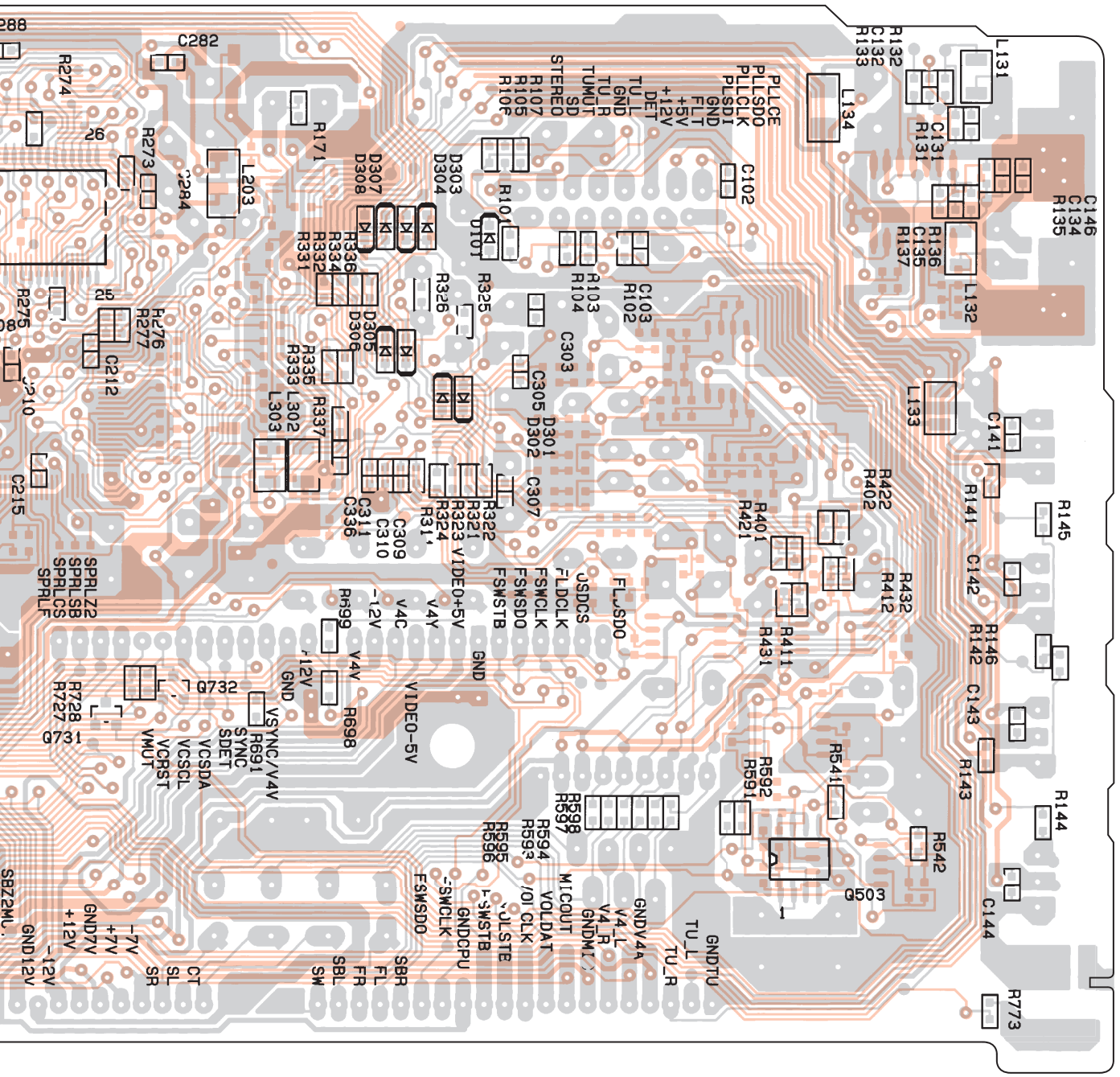
# PRINTED CIRCUIT BOARD VIEWS-6

## U03 DSP PC BOARD (NADG-8514)

Side B



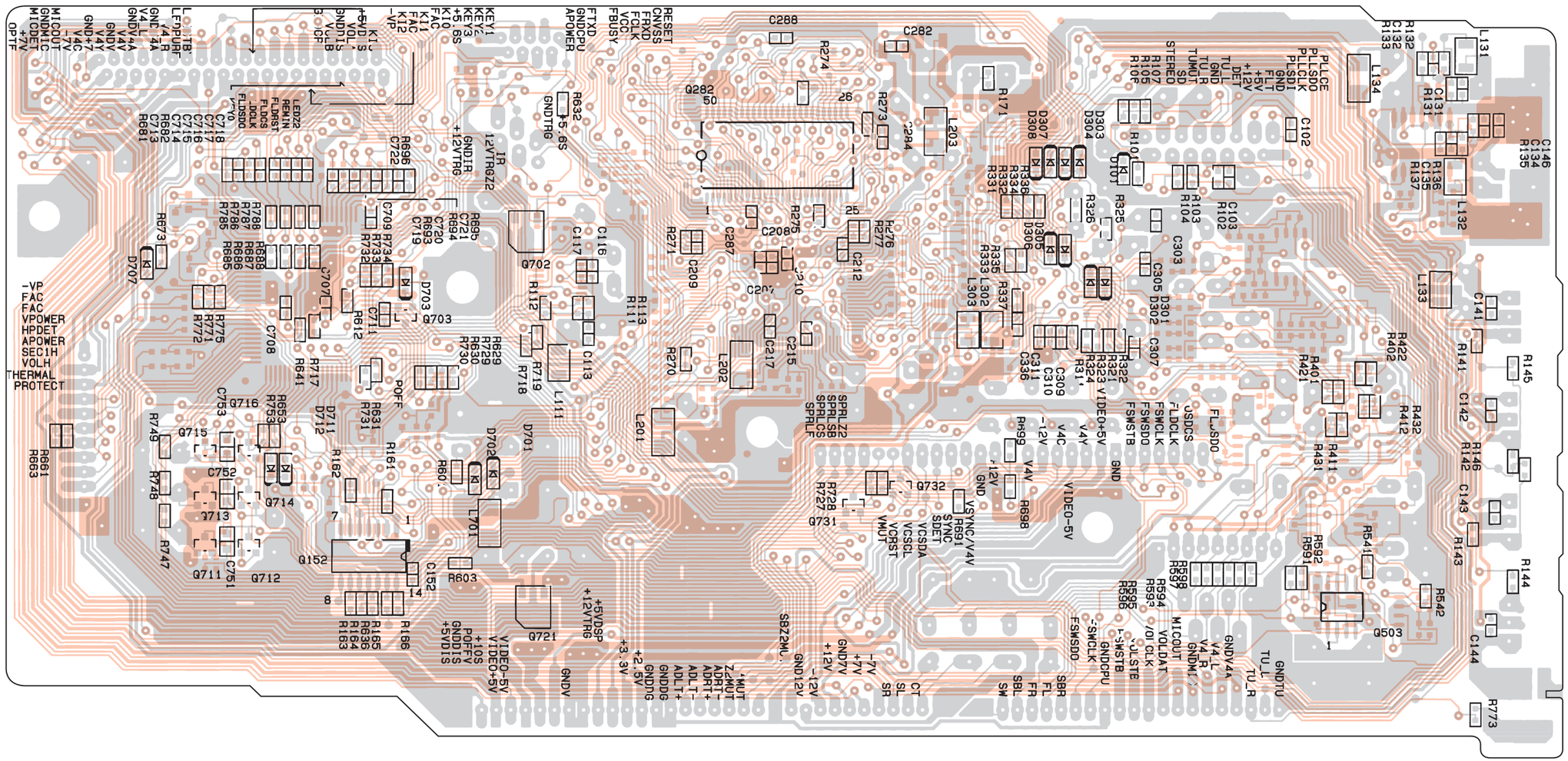
E F G H


C146
C134
R135
L131
R132
C132
R133
C131
R131
L134
R136
C135
R137
L132
C141
R141
C142
R145
R146
R142
C143
R143
R144
C144
R773
L133
R422
R402
R401
R421
R432
R412
R411
R431
R541
R542
Q503
R592
R591
R598
R597
R594
R593
R595
R596
C102
C103
R102
R103
R104
C303
C305
D301
D302
C307
R322
R321
R323
R324
C309
C310
C311
C336
R336
R334
R332
R331
D303
D304
D307
D308
D305
D306
R335
R333
L302
L303
R337
R325
R326
R171
L203
C282
R274
R273
C284
R276
R277
C212
C210
C215
R275
PLLCE
PLLSDO
PLLCLK
PLSDI
GND
FLT
+5V
+12V
DET
TU_L
GND
TU_R
TUMUT
SD
STEREO
R107
R105
R10F
R10
TUNER
VIDEO+5V
V4Y
V4C
-12V
R699
V4V
+12V
GND
VIDEO-5V
FLDCLK
FSWCLK
FSWSDO
FSWSTB
GND
FLSDO
JSDCS
VSYNC/V4V
R691
SYNC
SDET
VCSDA
VCSCL
VCRST
VMUT
Q732
R728
R727
Q731
SPRLZ2
SPRLSB
SPRLCS
SPRLF
GNDCPU
-SWCLK
FSWSDO
-SWSTB
JCLSTE
I/O CLK
MICOUT
VOLDAT
GNDMIC
V4_R
V4_L
GNDV4R
GNDTU
TU_L
TU_R
CT
SL
SR
SBR
FL
FR
SBL
SW
-7V
+7V
GND7V
+12V
-12V
GND12V
SBZ2MC

# PRINTED CIRCUIT BOARD VIEWS-6

**U03** **DSP PC BOARD**
**(NADG-8514)**

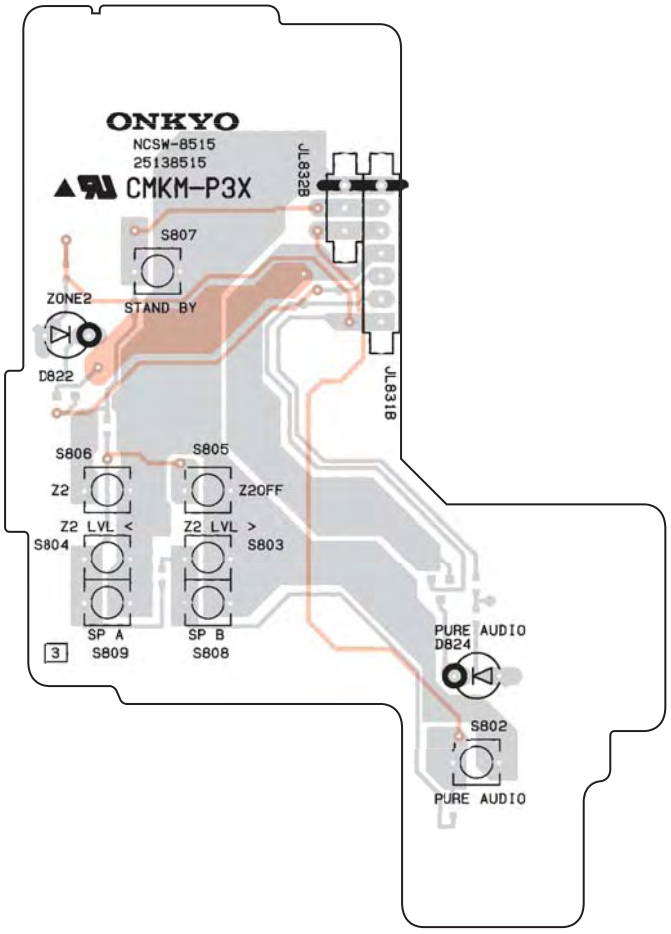
**Side B**



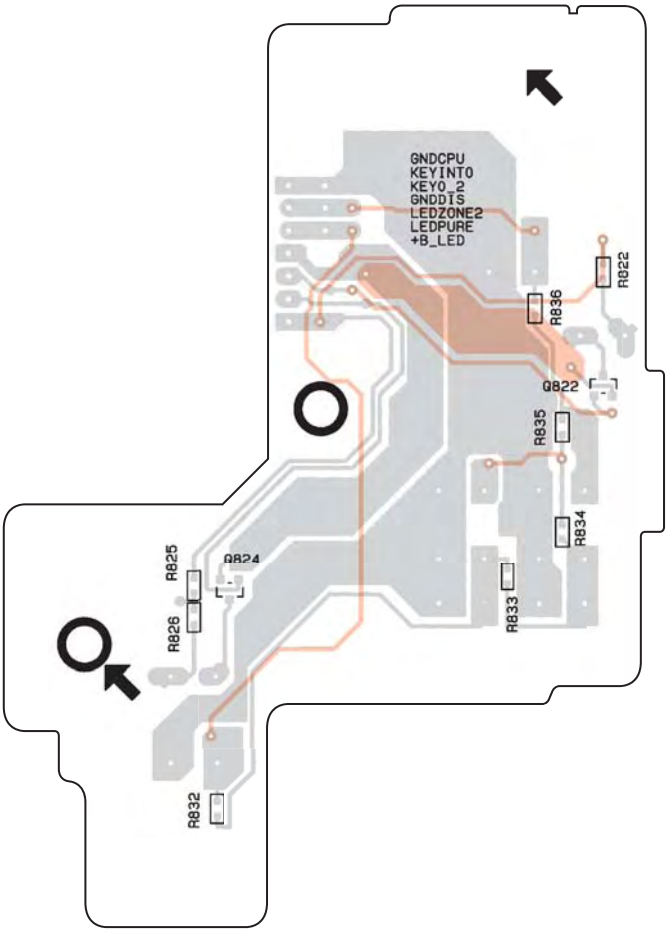
# PRINTED CIRCUIT BOARD VIEWS-7

## U04 SWITCH PC BOARD (NASW-8515)

Side A

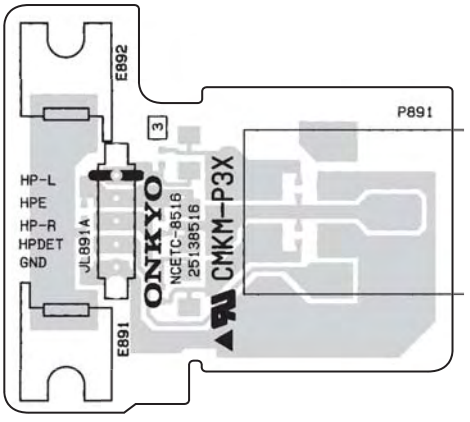



Side B

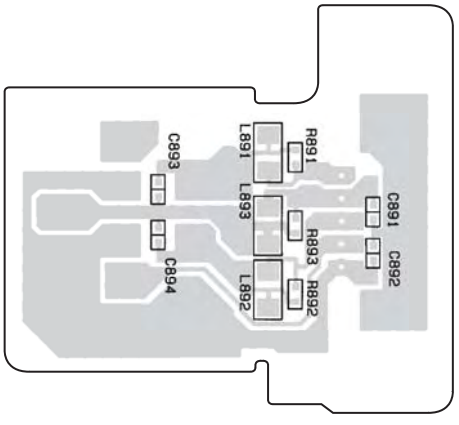



## U05 HEADPHONE JACK PC BOARD (NAETC-8516)

Side A



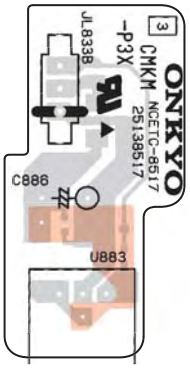

Side B



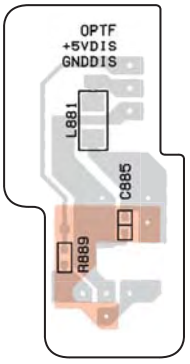
# PRINTED CIRCUIT BOARD VIEWS-8

## U06 FRONT OPT PC BOARD (NAETC-8517)

Side-A

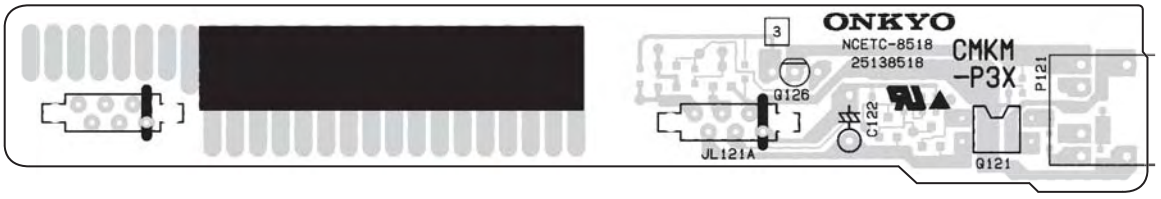



Side-B

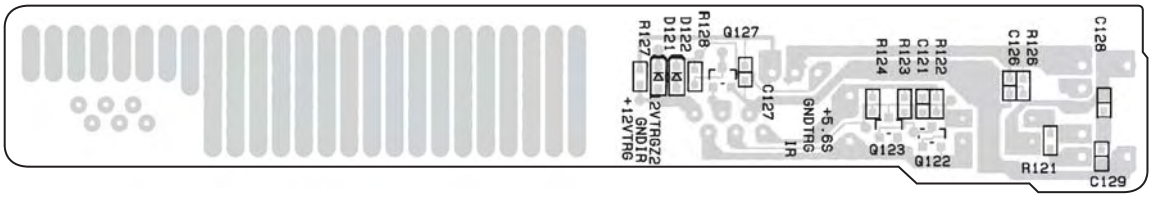



## U07 IR IN TERMINAL PC BOARD (NAETC-8518)

Side-A



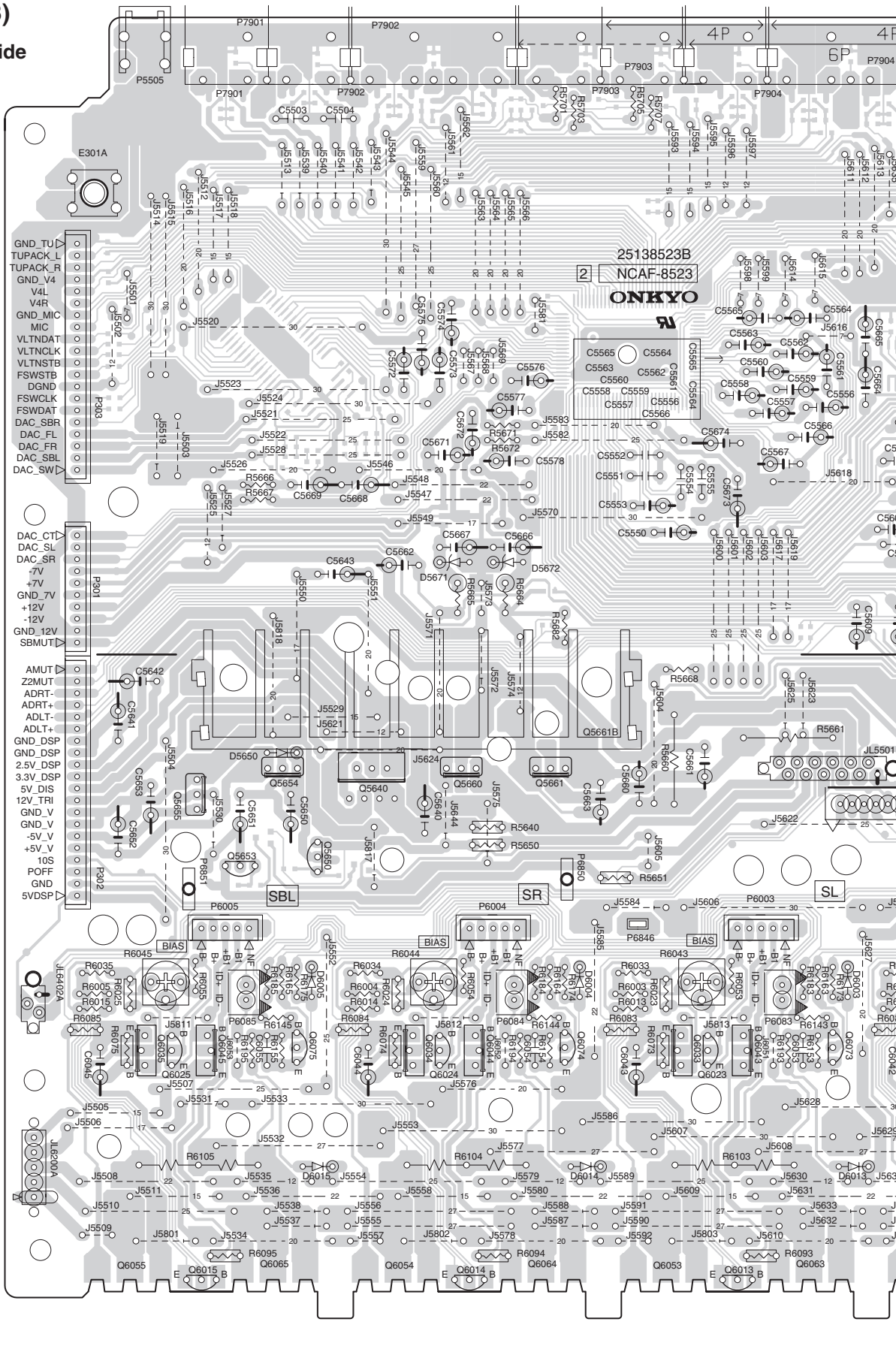

Side-B



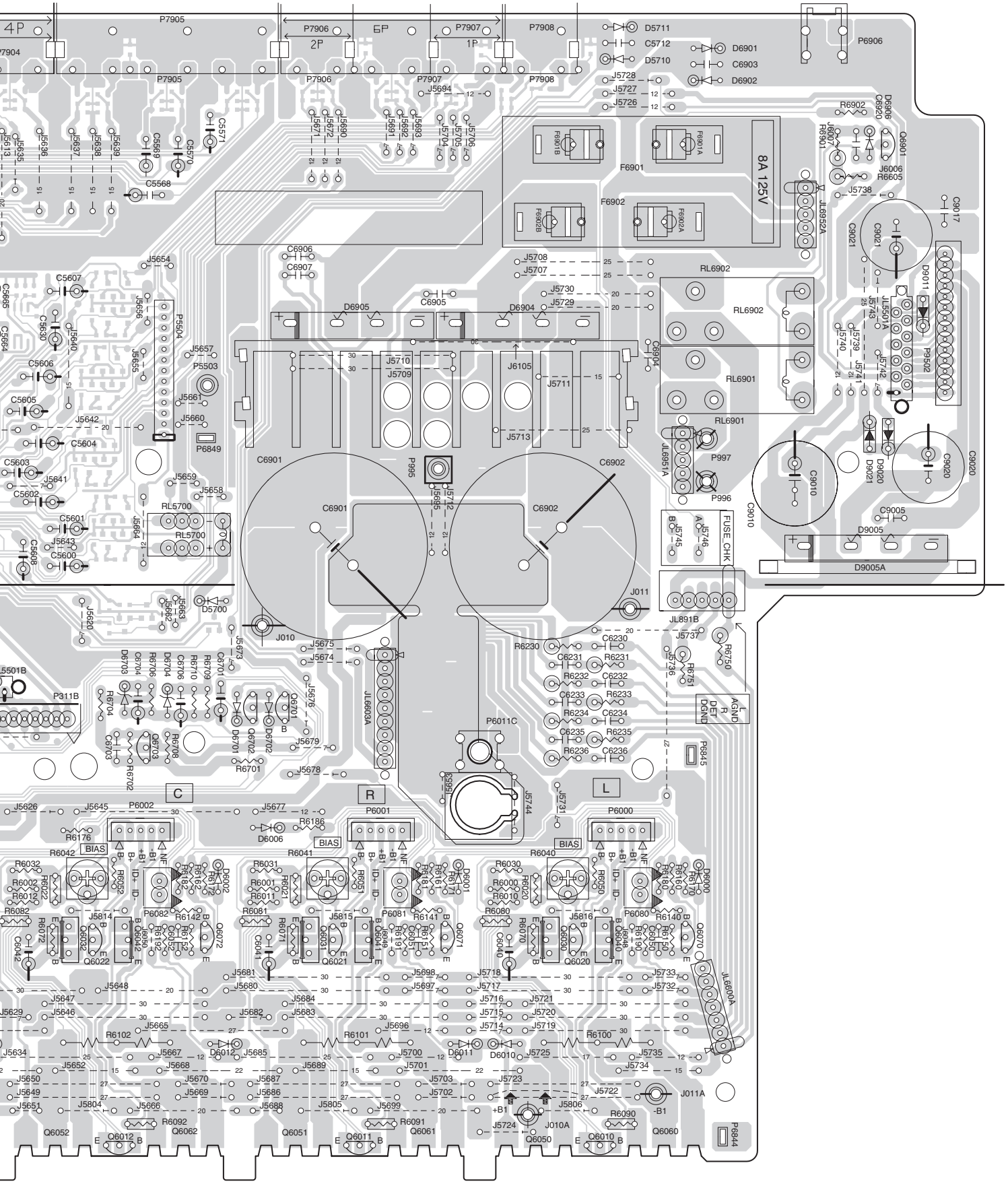
# PRINTED CIRCUIT BOARD VIEWS-9

## U09 AMPLIFIER PC BOARD (NAAF-8523)

### Component side



E F G H


P7905
P7906
P7907
P7908
4P
6P
2P
1P
D5711
C5712
D5710
D6901
C6903
D6902
P6906
J5728
J5727
J5726
J5694
R6902
C6920
D6906
Q6901
J6007
R6901
J6006
R6605
J5738
F6901B
F6901A
F6901
F6902B
F6902A
F6902
8A 125V
JL6952A
C9017
C9021
D9011
J5501A
P9502
J5743
J5740
J5739
J5741
J5742
C5571
C5570
C5569
C5568
C5613
C5635
C5636
C5637
C5638
C5639
J5671
J5672
J5690
J5691
J5692
J5693
J5704
J5705
J5706
C6906
C6907
J5654
C5607
C5665
C5664
C5630
J5640
J5636
J5655
P5504
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P5503
J5661
J5660
C5606
C5605
J5642
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P6849
C5603
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C5602
C5601
J5643
C5600
C5608
J5659
J5658
RL5700
RL5700
J5664
J5708
J5707
J5730
J5729
J5710
J5709
J6105
J5711
J5713
D6905
D6904
C6905
C6904
RL6902
RL6902
RL6901
RL6901
JL6951A
P997
P996
P995
J5712
J5695
C6901
C6902
C6901
C6902
C9010
C9005
D9005
D9005A
C9020
D9020
D9021
J5746
J5745
FUSE_CHK
J011
JL891B
J5737
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R6751
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J5662
D5700
J010
J5675
J5674
J5673
R6230
C6230
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R6231
R6232
C6232
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R6234
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C6235
R6235
R6236
C6236
L
AGND
R
DET
DGND
P6845
P6011C
J5744
J5731
C
R
L
J5626
J5645
P6002
J5677
R6186
D6006
P6001
P6000
BIAS
BIAS
BIAS
R6042
R6041
R6040
R6032
R6002
R6012
R6031
R6001
R6011
R6030
R6000
R6010
R6082
R6022
R6081
R6021
R6080
R6020
J5814
J5815
J5816
P6082
P6081
P6080
R6142
R6141
R6140
Q6072
Q6071
Q6070
Q6032
Q6031
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Q6020
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J5685
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D6011
D6010
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J5703
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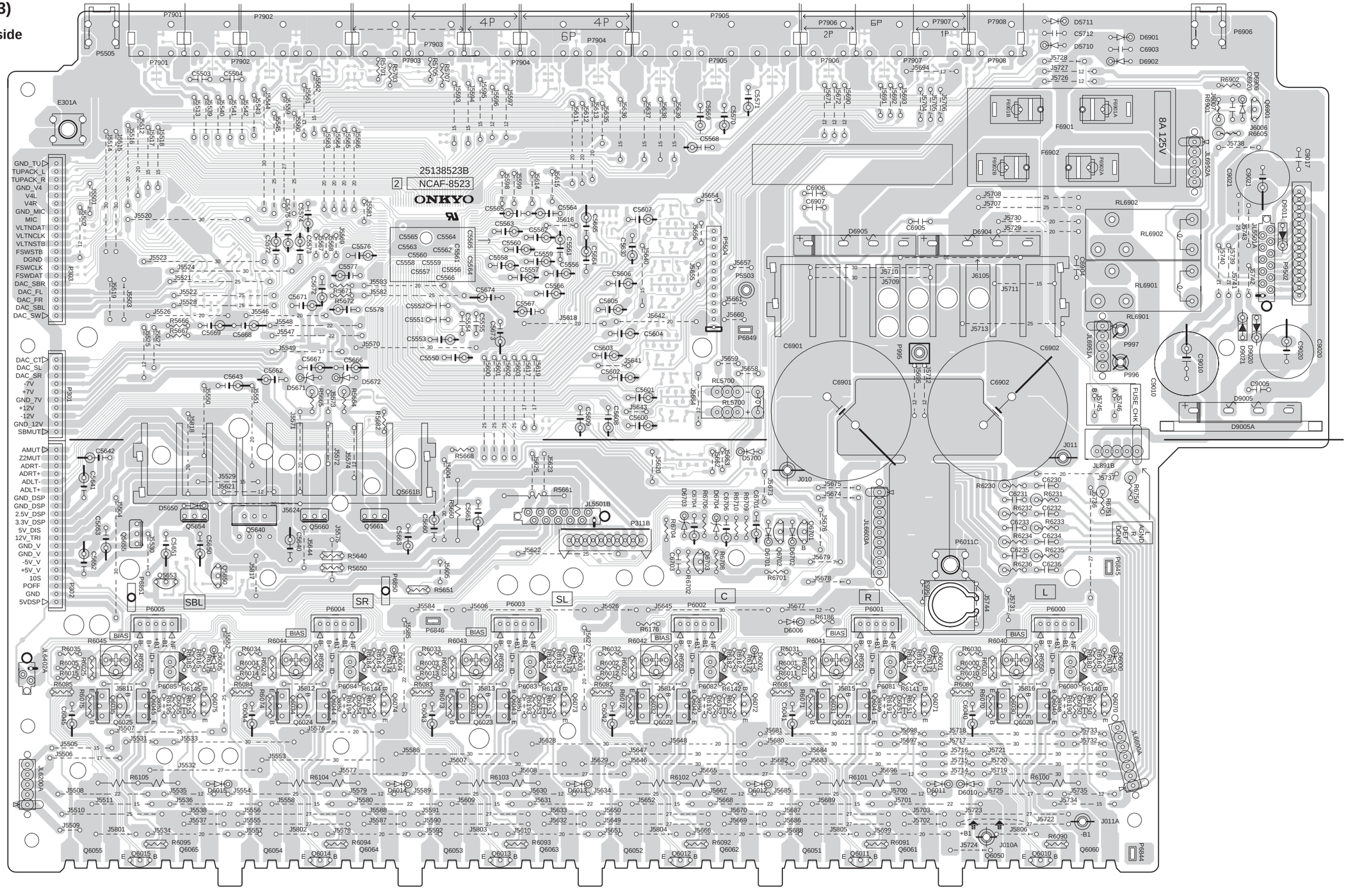
J011A
J5649
J5669
J5686
J5702
J5651
J5804
J5666
J5688
J5805
J5699
J5806
+B1
-B1
J5724
J010A
R6092
R6091
R6090
Q6052
Q6062
Q6051
Q6061
Q6050
Q6060
Q6012
Q6011
Q6010
P6844
JL6003A
JL6004A

# PRINTED CIRCUIT BOARD VIEWS-9

## U09 AMPLIFIER PC BOARD (NAAF-8523)

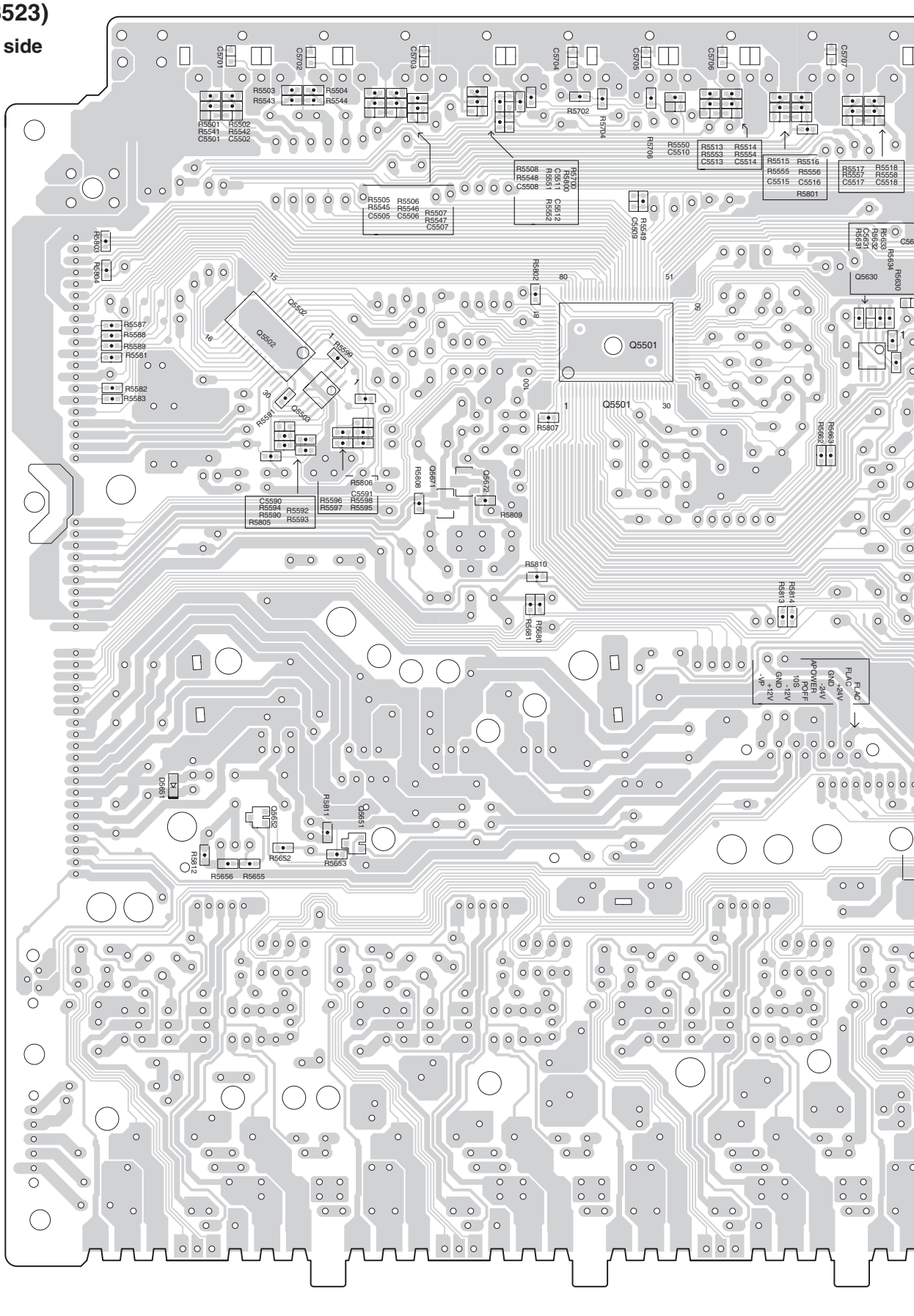
**Component side**



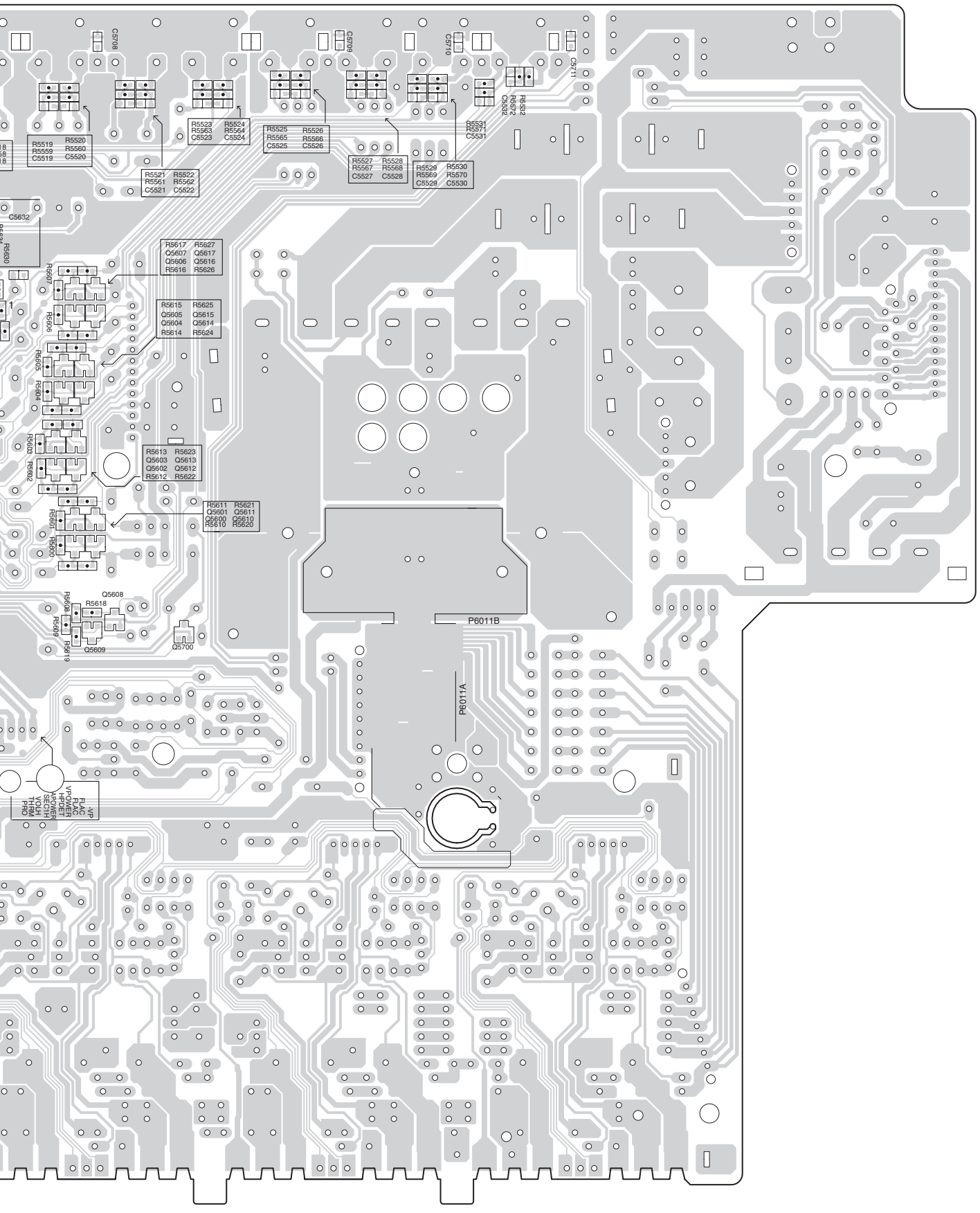
# PRINTED CIRCUIT BOARD VIEWS-10

## U09 AMPLIFIER PC BOARD (NAAF-8523)

**Soldering side**



E F G H

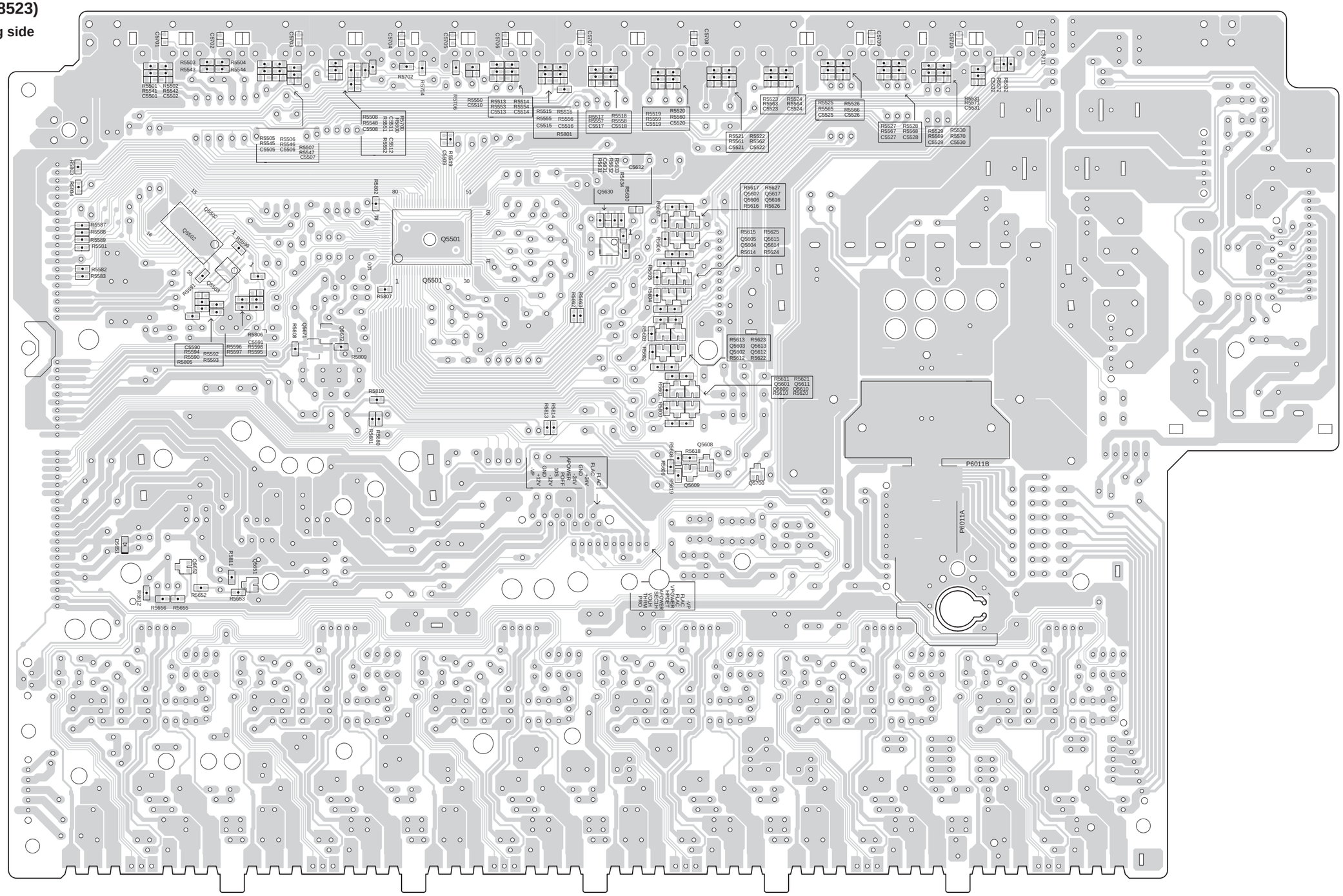

C5708
C5709
C5710
C5711
R5532
C5532
R5519 R5520
R5559 R5560
C5519 C5520
R5523 R5524
R5563 R5564
C5523 C5524
R5525 R5526
R5565 R5566
C5525 C5526
R5531
R5571
C5531
R5521 R5522
R5561 R5562
C5521 C5522
R5527 R5528
R5567 R5568
C5527 C5528
R5529 R5530
R5569 R5570
C5529 C5530
C5632
R5630
R5617 R5627
Q5607 Q5617
Q5606 Q5616
R5616 R5626
R5607
R5615 R5625
Q5605 Q5615
Q5604 Q5614
R5614 R5624
R5606
R5605
R5604
R5603
R5602
R5613 R5623
Q5603 Q5613
Q5602 Q5612
R5612 R5622
R5611 R5621
Q5601 Q5611
Q5600 Q5610
R5610 R5620
R5601
R5600
Q5608
R5618
R5608
R5609
R5619
Q5609
Q5700
P6011B
P6011A
VFP
FLAG
PWR
VPOWER
HPOWER
SECTH
THRM
PRO

TX-SR603/603E/8360

# PRINTED CIRCUIT BOARD VIEWS-10

## U09 AMPLIFIER PC BOARD (NAAF-8523)

**Soldering side**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Q5503
Q5630
Q5608
Q5609
Q5700
Q5651
P6011B
P6011A
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C5704
C5705
C5706
C5707
C5708
C5709
C5710
C5711
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R5809
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R5806
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R5655
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R5584
R5585
R5586
R5587
R5588
R5589

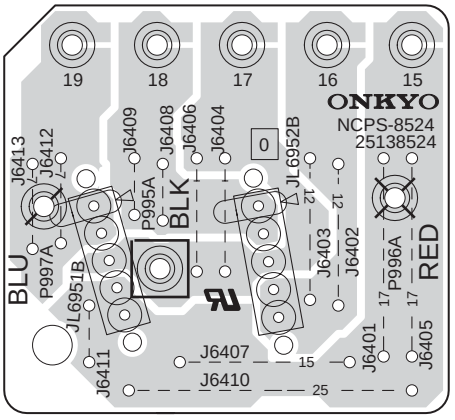
A B C D

1 2 3 4 5

# PRINTED CIRCUIT BOARD VIEWS-11

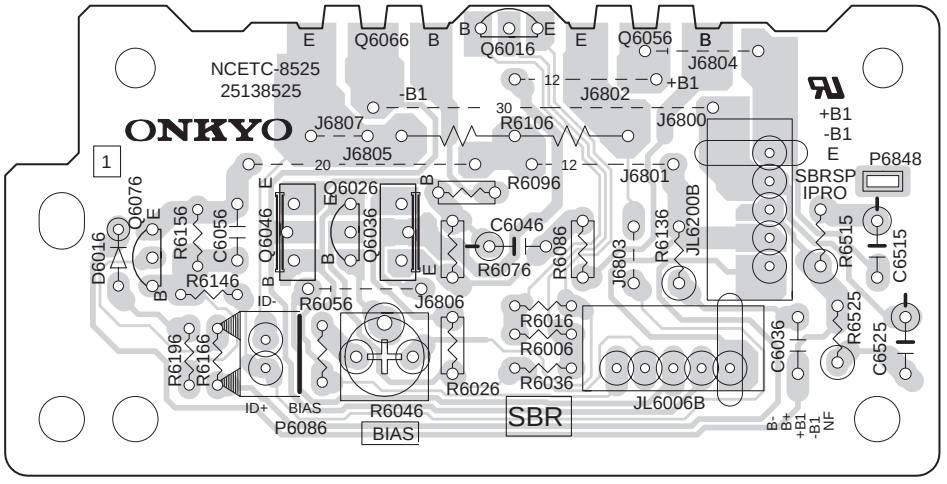
## U10 SEC. TERMINAL-2 PC BOARD (NAPS-8524)

**Component side**



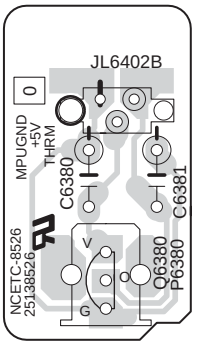

## U11 SBR AMPLIFIER PC BOARD (NAETC-8525)

**Component side**




## U12 THERMAL SENSOR PC BOARD (NAETC-8526)

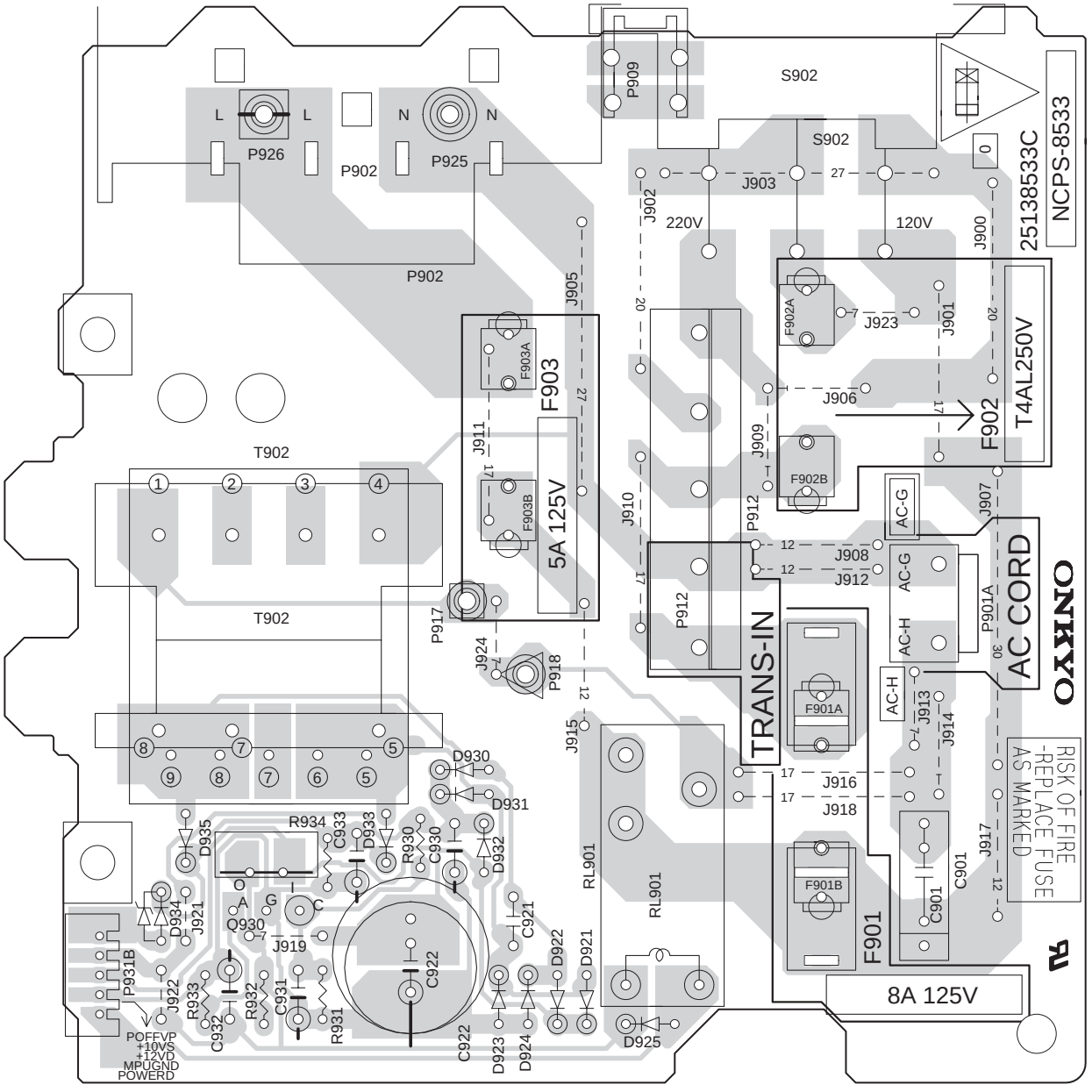
**Component side**



# PRINTED CIRCUIT BOARD VIEWS-12

## U15 POWER SUPPLY-1 PC BOARD (NAPS-8533)

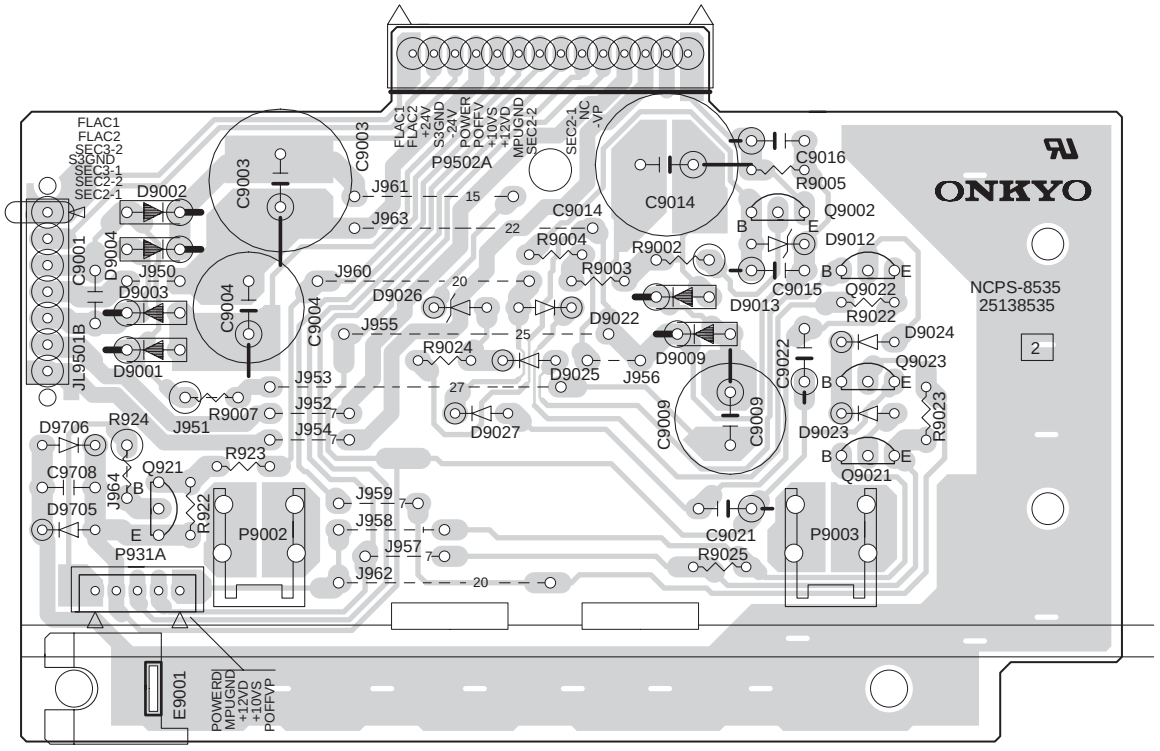
**Component side**



# PRINTED CIRCUIT BOARD VIEWS-13

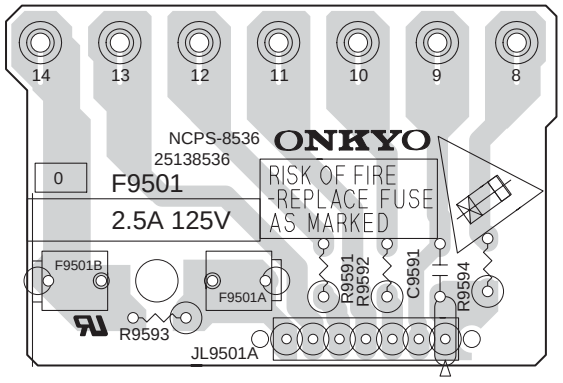
## U17 POWER SUPPLY-2 PC BOARD (NAPS-8535)

**Component side**




## U18 SEC. TERMINAL-1 PC BOARD (NAPS-8536)

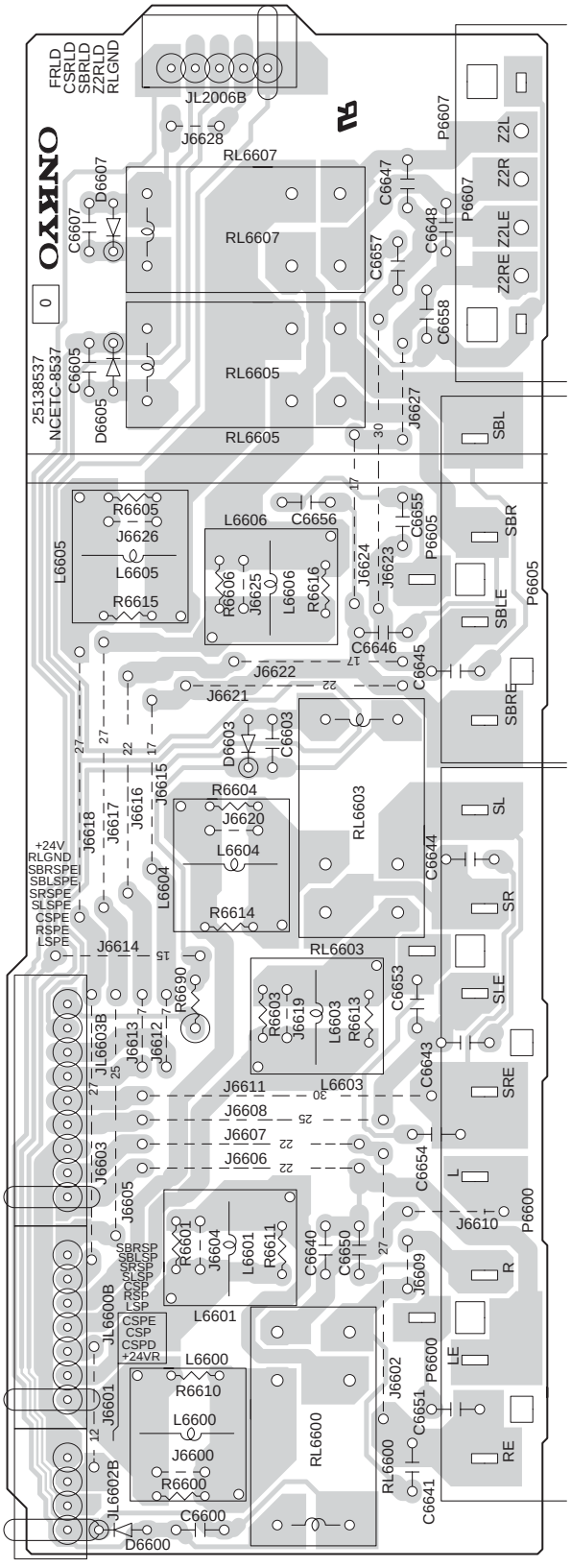
**Component side**



# PRINTED CIRCUIT BOARD VIEWS-14

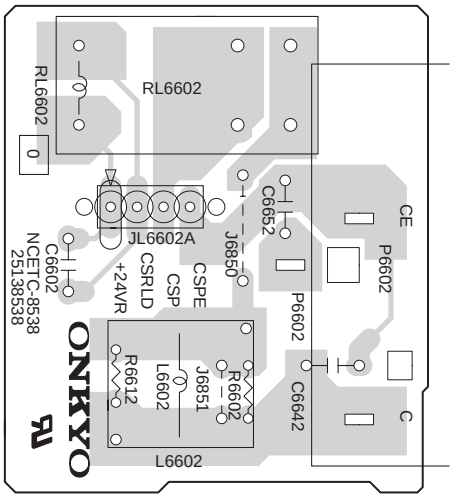
## U19 SPEAKER TERMINAL PC BOARD (NAETC-8537)

**Component side**




## U20 CENTER SPEAKER TERMINAL PC BOARD (NAETC-8538)

**Component side**



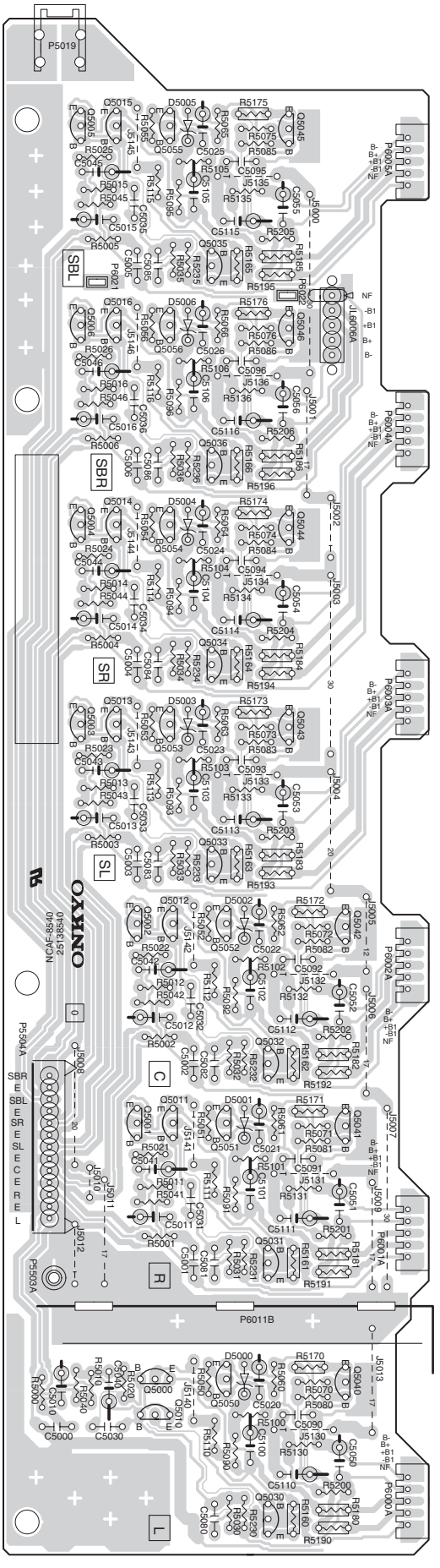
A B C D

1 2 3 4 5

# PRINTED CIRCUIT BOARD VIEWS-15

## U22 DRIVER AMPLIFIER PC BOARD (NAAF-8540)

**Component side**



# MICROPROCESSOR TERMINAL DESCRIPTIONS-1

## Q701: M30624MHP-253FPU0

| Pin No. | Pin name | I/O | Act. | Description |
|---|---|---|---|---|
| 1 | FLDSDO | O | H | Output serial data for control of FL driver IC/ OSD IC. |
| 2 | FLDCLK | O | CLK | Output serial clock for control of FL driver IC/ OSD IC. |
| 3 | FLDCS | O | H | Output chip select for FL driver IC. |
| 4 | FLDRST | O | L | Output reset signal for FL driver IC. |
| 5 | FSWSDO | O | H | Output serial data for control of function switch (NJU7311). |
| 6 | FSWSTB | O | H | Output strobe for control of function switch (NJU7311). |
| 7 | FSWCLK | O | H | Output serial clock for control of function switch (NJU7311). |
| 8 | BYTE | --- | --- | Select of external bus width. Connect to ground. |
| 9 | CNVSS | --- | --- | Select of processor mode. |
| 10 | SDET | I | L | Input signal of detection of S video signal. |
| 11 | SYNC | I | L | Input signal of detection of synchronizing signal. |
| 12 | RESET | I | L | Input signal for system reset. |
| 13 | XOUT | --- | --- | Connected to oscillator. |
| 14 | VSS | --- | --- | Ground. |
| 15 | XIN | --- | --- | Connected to oscillator. |
| 16 | VCC1 | --- | --- | Power supply. |
| 17 | NU | --- | --- | Not used. |
| 18 | VSUNC | I | L | Input signal of detection of vertical synchronizing signal. |
| 19 | REMIN | I | L | Input signal from remote sensor. |
| 20 | POFF | I | H | Input signal of power failure detection. |
| 21 | DIRINT1 | I | H | Not used. |
| 22 | DIRINT0 | I | H | Input signal of interrupt request detection of DSP C. |
| 23 | DIRCS | O | L | Output signal for chip select of DIR/CODEC. |
| 24 | DIRRST | O | L | Output signal for reset of DIR/CODEC. |
| 25 | DSPFCS | O | L | Output signal for chip select of DSP A/B. |
| 26 | DSPCS | O | L | Output signal for chip select of DSP C. |
| 27 | VMUT | O | L | Output control signal for video mute. |
| 28 | VCRST | O | L | Output reset signal for video decoder/ encoder IC. |
| 29 | SCL | O | L | Output serial clock for video decoder/ encoder IC. |
| 30 | SDA | I/O | H | Output serial data for video decoder/ encoder IC. |
| 31 | FTXD | O | H | For writing of flash microprocessor. |
| 32 | FRXD | I | H | For writing of flash microprocessor. |
| 33 | FCLK | O | CLK | For writing of flash microprocessor. |
| 34 | FBUSY | O | H | Output reset signal for DSPIC. |
| 35 | DIGSDO | O | H | Output signal for serial communications with DIR/ CODEC/DSP IC. |
| 36 | DIGSDI | I | H | Input signal for serial communications with DIR/ CODEC/DSP IC. |
| 37 | DIGCLK | O | CLK | Output clock for serial communications with DIR/ CODEC/DSP IC. |
| 38 | DSPBUSY | I | H | Input signal of detect busy signal of DSP C. |
| 39 | DSPINT | I | L | Input signal of detect interrupt request signal of DSP C. |
| 40 | DSPFINT | I | L | Input signal of detect interrupt request signal of DSP AB. |
| 41 | FEPM | O | H | For writing of flash microprocessor. |
| 42 | DSPRST | O | L | Output reset signal for DSP IC. |
| 43 | VOLSTB | O | H | Output strobe for control of volume IC. |
| 44 | VOLCLK | O | CLK | Output serial clock for control of volume IC. |
| 45 | VOLDAT | O | H | Output serial data for control of volume IC. |
| 46 | FCE | I | H | For writing of flash microprocessor. |
| 47 | Z2MUT | O | H | Output signal of zone 2 mute |
| 48 | SBZ2MUT | O | H | Output signal of surround back mute. |
| 49 | AMUT | O | H | Output signal of audio mute. |
| 50 | SPRLB | O | H | Output control signal for relay drive of speakers-B. |

# MICROPROCESSOR TERMINAL DESCRIPTIONS-2

## Q701: M30624MHP-253FPU0

| Pin No. | Pin name | I/O | Act. | Description |
|---|---|---|---|---|
| 51 | SPRLSB | O | H | Output control signal for relay drive of surround back speakers. |
| 52 | SPRLCS | O | H | Output control signal for relay drive of center and surround speakers. |
| 53 | SPRLF | O | H | Output control signal for relay drive of front speakers. |
| 54 | TUMUT | O | H | Output signal of tuner mute. |
| 55 | PLLCE | O | H | Output chip enable for PLL IC of tuner. |
| 56 | PLLSDO | O | H | Output serial data for PLL IC of tuner. |
| 57 | PLLCLK | O | CLK | Output serial clock for PLL IC of tuner. |
| 58 | STEREO/PLLSDI | I | L | Input detection of stereo signal, and serial data of PLL IC. |
| 59 | SD | I | L | Input detection signal of demodulation of tuner. |
| 60 | VPOWER | O | H | Output control signal of power supply of the video circuit. |
| 61 | APOWER | O | H | Output control signal of main power supply. |
| 62 | VCC2 | --- | --- | Power supply. |
| 63 | SEC1H | O | H | Output control signal for power supply of amplifier section. |
| 64 | VSS | --- | --- | Ground. |
| 65 | VOLH | I | A/D | Input detection signal of speaker output level. |
| 66 | THERMAL | I | A/D | Input detection signal of thermal detection. |
| 67 | PROTECT | I | H | Input detection signal of over current of speaker output. |
| 68 | FANCTRL | O | L | Output control signal of cooling fan. Function control. |
| 69 | FANH | O | L | Output control signal of cooling fan. Speed control. |
| 70 | TRGZ2 | O | H | Output of 12V trigger out/ zone 2 signal. |
| 71 | RDSDAT | I | H | Input serial data of RDS. MPP (European model) only. |
| 72 | RDSSIG | I | H | Input detection signal of demodulation of RDS. MPP (European model) only. |
| 73 | SYSIN | I | H | Input signal of RI (system control). |
| 74 | NU | --- | --- | Not used. |
| 75 | ~RDSCLK | I | L | Input serial clock of RDS. MPP (European model) only. |
| 76 | ~SYSOUT | O | L | Output signal of RI (system control). |
| 77 | LEDPURE | O | H | Output control signal of pure audio LED. Except MDD (USA model). |
| 78 | LEDZONE2 | O | H | Output control signal of zone 2 LED |
| 79 | LEDSTBY | O | L | Output control signal of Standby LED. |
| 80 | HPRL | O | H | Output control signal for relay drive of headphone. |
| 81 | HPDET | I | H | Input detection signal of headphone state. |
| 82 | MICDET | I | L | Input detection signal of setup mic state. |
| 83 | VOLB | I | H | Input signal of rotary encoder. |
| 84 | VOLA | I | H | Input signal of rotary encoder. |
| 85 | INIT3 | I | A/D | For initial setting-3. |
| 86 | INIT2 | I | A/D | For initial setting-2. |
| 87 | INIT1 | I | A/D | For initial setting-1. |
| 88 | BAND | I | A/D | For initial setting of tuner band and step. |
| 89 | KEYINT3 | I | L | Input signal of operation keys. |
| 90 | KEYINT2 | I | L | Input signal of operation keys. |
| 91 | KEYINT1 | I | L | Input signal of operation keys. |
| 92 | KEYINT0 | I | L | Input signal of operation keys. |
| 93 | KEY3 | I | A/D | Input signal of operation keys. |
| 94 | KEY2 | I | A/D | Input signal of operation keys. |
| 95 | KEY1 | I | A/D | Input signal of operation keys. |
| 96 | AVSS | --- | --- | Ground for A/D. |
| 97 | KEY0 | I | A/D | Input signal of operation keys. |
| 98 | VREF | --- | --- | Power supply for reference of A/D. |
| 99 | AVCC | --- | --- | Power supply. |
| 100 | OSDCS | O | H | Output of chip select of OSD IC. |

# ADJUSTMENT PROCEDURE-1
## IDLING CURRENT ADJUSTMENT

**[When]**

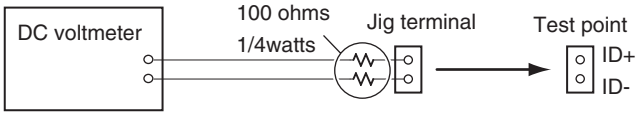
Exchange Power transistor (Q6051 - Q6066) and Amplifier PC board (NAAF-8523).

**[Procedure]**

**<Note> No load and No signal**

Refer to <Fig-1> in " ADJUSTMENT PROCEDURES-2 " about the adjustment points and the test points.

1. Before idling adjustment, turn the trimming resistors to counter clockwise.
2. Connect the DC voltmeter to test points.
   Connect 100 ohm resistance near the terminal of the two poles of a Jig terminal.




3. Connect the AC power cord to wall outlet.
4. Press the STANDBY/ON button into the power on.
5. Adjust the trimming resistors as following procedure immediately after power on.

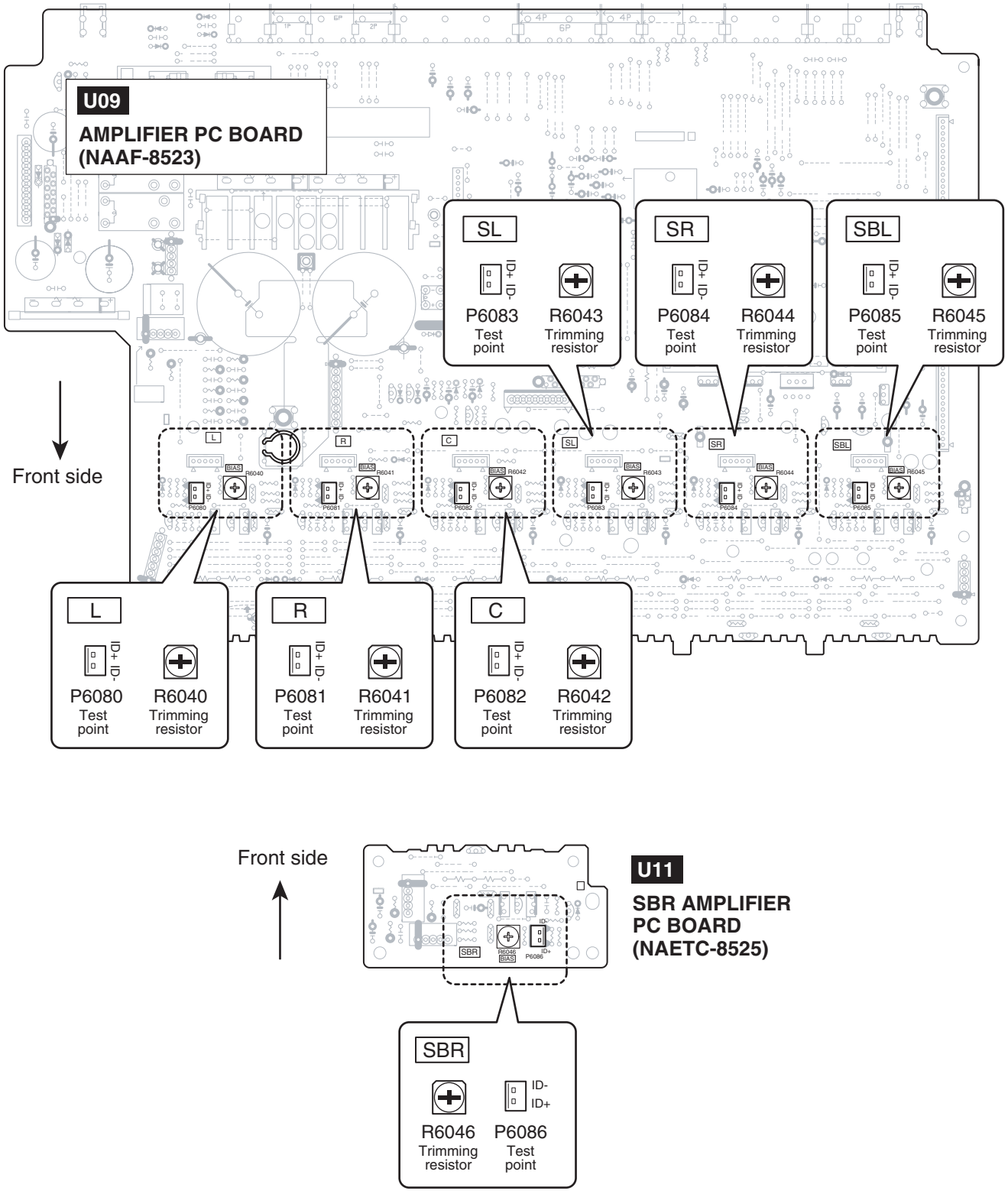
| Channel | Mark | Adjustment point (Trimming resistor) | Measuring point (Test point) | Adjustment value |
|---|---|---|---|---|
| Left | L | R6040 | P6080 | 2.5 mV |
| Right | R | R6041 | P6081 | 2.5 mV |
| Center | C | R6042 | P6082 | 2.5 mV |
| Surround Left | SL | R6043 | P6083 | 1.5 mV |
| Surround Right | SR | R6044 | P6084 | 1.5 mV |
| Surround Back Left | SBL | R6045 | P6085 | 1.5 mV |
| Surround Back Right | SBR | R6046 | P6086 | 1.5 mV |

6. Wait for 4 - 6 minutes. (Heat running)
7. Re-adjust the trimming resistors as following procedure.

| Channel | Adjustment point | Measured value | | Adjustment value | Specifications ( ＊In a stable state) |
|---|---|---|---|---|---|
| Left, Right and Center | R6040, R6041 and R6042 | In case below 9 mV | → | 9 mV | 12 +/- 3 mV |
| | | In case 9 - 11 mV | → | Leave it as it is | |
| | | In case over 11 mV | → | 11 mV | |
| Surround Left<br>Surround Right<br>Surround Back Left<br>Surround Back Right | R6043, R6044, R6045 and R6046 | In case below 6 mV | → | 6 mV | 9 +/- 3 mV |
| | | In case 6 - 8 mV | → | Leave it as it is | |
| | | In case over 8 mV | → | 8 mV | |

8. Disconnect the DC voltmeter.
9. Press the STANDBY/ON button into the power off.
10. Disconnect the AC power cord.

＊ Idling current are stabilized in about 10 minutes after a power supply ON.

# ADJUSTMENT PROCEDURE-2
## IDLING CURRENT ADJUSTMENT

<Fig-1>